Movie Ticket Vending machine: Redesigning fast, touch-friendly and intuitive booking experience

A PROJECT REPORT

SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF THE DEGREE OF

MASTER OF DESIGN

IN

INTERACTION DESIGN

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Place: Delhi **Riya**

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CANDIDATE'S DECLARATION

I, Riya, Roll No – 2K23/MDID/09, student of Master of Design (Interaction Design), hereby declare that the project dissertation titled "**Movie Ticket Vending Machine: Redesigning fast, touch-friendly and intuitive booking experience**" which is submitted by me to the Department of Design, Delhi Technological University, Delhi in partial fulfilment of the requirement for the award of the degree of Master of Design, is original and not copied from any source without proper citation. This work has not previously formed the basis for the award of any Degree, Diploma Associateship, Fellowship, or other similar title or recognition.

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Date: 9 May 2025

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CERTIFICATE

I hereby certify that the project dissertation titled "**Movie Ticket Vending Machine: Redesigning fast, touch-friendly and intuitive booking experience**" which is submitted by Riya, Roll No: 2K23/MDID/09, Department of Design, Delhi Technological University, Delhi in partial fulfilment of the requirement for the award of the degree of Master of Design, is a record of the project work carried out by the students under my supervision. To the best of my knowledge this work has not been submitted in part or full for any Degree or Diploma to this University or elsewhere.

Place: Delhi

Date: 9 May 2024

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ABSTRACT

This thesis project explores the redesign of the movie ticket vending machine interface, with the objective of creating a fast, touch-friendly, and intuitive booking experience for diverse users across Indian cinema halls. The study tackles the antiquated, ineffective, and frequently inaccessible methods that are now in use at many public multiplexes. The slow response times, poor visual hierarchy, limited accessibility features, and lack of contextual awareness of these outdated interfaces usually irritate users.

The revised system, which was created through comprehensive user research, path mapping, and iterative prototyping, focuses on reducing cognitive burden, increasing interaction speed, and promoting inclusivity. It focuses on first-time users, older persons, regional language speakers, and digitally semi-literate users, all of whom are frequently neglected by current designs. The touch interface has been reinvented with gesture-friendly interactions, bold visual signals, and adaptive screen flows that reduce the number of taps required to complete tasks.

This machine is designed not only as a ticket booking tool, but also as a public-facing service that anyone can use without feeling awkward or stressed. The result is a streamlined, modular machine interface that can be tailored to various cinema settings, locales, and user requirements, whether urban or semi-urban. The purpose of this effort is to make technology in public settings feel like a bridge to joyful experiences like going to the movies.

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CHAPTER 1

INTRODUCTION

In the context of constantly changing urban landscapes and increasing automation of public services, the cinema ticket vending machine remains an important but understudied interface. Despite its widespread use in multiplexes and entertainment hubs, its usability, accessibility, and responsiveness frequently fail—especially when users are under time constraints, encounter novel UI patterns, or are less digitally savvy. These kiosks, which are intended to serve a broad audience, frequently adopt a one-size-fits-all model that ignores nuanced user demands, physical ergonomics, and sensible interaction flow.

The paper focuses at the convergence of interaction design, public utility interfaces, and time-sensitive service systems, with the cinema ticket vending machine serving as the focal artifact. It positions the ticketing kiosk not only as a transactional tool, but also as a point of interaction that mediates access, emotion, and experience. From selecting a showtime to navigating seating maps, interface design has a significant impact on how consumers perceive not only the machine but also the entertainment experience.

The research derives from a fundamental finding: existing vending systems frequently disregard the concepts of touch-friendly responsiveness, visual clarity, and emotional ease in favor of functionality over experience. This leads to preventable user friction that affects both customer pleasure and overall service effectiveness, ranging from decision fatigue and mistouches to confusion and delays. By using usability heuristics, human-centered design frameworks, and iterative prototyping based on real-world testing, I hope to comprehend and resolve these frictions through this thesis. (William Albert, 2008)

This project investigates the wider ramifications of creating public digital touchpoints that cater to diverse audiences in common areas, going beyond enhancing a single interface. The study adds to current discussions in interaction design around how to build interfaces that are not just useful but also sympathetic, readable, and enjoyable to use under duress.

By accomplishing this, the thesis offers a reinvented movie ticketing experience as well as a design technique that can be used to other industries, including government services, healthcare, and transit, to create comparable kiosk-based systems.

1.1 About the project

In order to improve the usability of movie ticket vending machines in busy public spaces, this thesis project explores and reimagines the user experience. Despite being widely used, these kiosks frequently suffer from ineffective interaction flows, sluggish responsiveness, inadequate accessibility, and inconsistent visual language, which irritates users and causes delays in operations.

The project uses a human-centered interaction design process, starting with a thorough usability analysis of current kiosk systems and field research. In order to comprehend behavioral patterns, interface pain points, and accessibility issues, it integrates qualitative data from actual users—from novices to regular moviegoers.

With the use of usability testing, prototyping, and iterative design, the project seeks to create a polished, touch-optimized interface that makes ticketing quick, simple, and accessible. The finished product is meant to serve as both an interface overhaul and an example of best practices in the design of public-facing interactions, guaranteeing future adaptability, scalability, and consistency.

1.2 Project brief

The goal of this project is to rethink movie ticket vending machine user interfaces in order to make them faster, easier to use, and touch-optimized. Current systems frequently have accessibility problems, unclear design, and usability problems, particularly in busy settings. This thesis employs a user-centered design methodology to identify real-world interaction difficulties and suggests an enhanced interface that improves speed, clarity, and usability for a wide variety of users.

1.3 Aim

To redesign a movie ticket vending machine interface that significantly enhances the booking experience by making it faster, more intuitive, and better suited for touch-based interactions in public environments.

1.4 Objective

- To identify usability gaps in existing movie kiosk interfaces through primary and secondary research.
- To understand user behavior and expectations across various demographics and usage contexts.
- To design an improved interaction flow that minimizes decision fatigue and reduces cognitive load.
- Prototype an optimized interface with emphasis on clarity, responsiveness, accessibility, and visual hierarchy.
- To test and evaluate the redesigned solution through iterative usability testing to ensure effectiveness in real-world scenarios.
- To document guidelines and frameworks for designing efficient, public-facing touch interfaces.

1.5 Expected deliverables

- A thorough research report that includes problem analysis, journey maps, and user personas.
- A comprehensive work flow diagram and information architecture.
- An Interactive High-Fidelity Prototype showcasing the updated user interface.
- A report on usability testing that includes analytics, insights, and test results.
- A type system, color scheme, and component library specifically designed for public touchscreen interfaces.
- A collection of recommendations and design guidelines for scalability and future development

CHAPTER 2

RESEARCH METHODOLOGY

The functionality of movie ticket vending machines was examined and improved in this study using a qualitative, iterative, and human-centered methodology. In order to find patterns of user annoyance, delays, and confusion with navigation, the approach started with in-depth on-site observations at movie theaters. These first-hand observations were essential in establishing the direction of the study and bringing it into line with actual user behavior.

- A comprehensive examination of the body of research on human-computer interaction, usability principles in public service kiosks, and existing literature was done in order to gain a deeper understanding.
- These included research on interaction flow, visual hierarchy, cognitive load, and touchscreen behavior in time-sensitive settings.
- Primary research was conducted using contextual user walkthroughs, in-depth interviews, and live booking scenario recording for a range of user profiles, from young people with high levels of digital literacy to older people with low levels.
- To identify transferable trends and best practices, comparative case studies of comparable public-use systems—like metro ticket kiosks and airport check-in counters—were examined.
- Key interaction pain spots, path maps, and user personas were created by synthesizing the collected insights through affinity clustering and thematic coding.
- Low- to high-fidelity prototypes were created using these insights, and they were subsequently evaluated iteratively for usability, booking speed, and interface clarity.
- In order to improve the design and make sure it addressed both the practical and emotional parts of the booking experience, user feedback loops were integrated at every level.

In addition to user needs, the approach was informed by design ethics, accessibility guidelines, and system scalability. The result is a solid, touch-friendly interface solution that improves the usefulness and user experience of moviegoers engaging with ticket kiosks.

As shown in Figure 1, through this method, the movie ticket vending machine's interface was made to be user-centered, research-driven, and intuitively responsive.

Figure 1: Flowchart for the design Process

2.1 Project Timeline

The project was structured over a 14-week timeline, spanning from mid-January to late April 2025

Table 1: Project Timeline

Week	Dates	Tasks / Milestones
Week 1	Jan 17 – Jan 23	Project briefing, defining objectives, identifying key UX problems

Week 2	Jan 24 – Jan 30	Field observations, user interviews, competitor analysis
Week 3	Jan 31 – Feb 6	User journey mapping, identifying pain points and key interaction gaps
Week	**Dates**	**Tasks / Milestones**
Week 5	Feb 14 – Feb 20	Wireframing key screens (seat selection, payment, confirmation)
Week 6	Feb 21 – Feb 27	Usability testing of wireframes, feedback collection
Week 7	Feb 28 – Mar 6	Mid-project review, refining wireframes based on feedback
Week 8	Mar 7 – Mar 13	UI design exploration: color palettes, typography, and iconography
Week 9	Mar 14 – Mar 20	High-fidelity mockups: seat selection + personal info screens
Week 10	Mar 21 – Mar 27	High-fidelity mockups: payment + final ticket confirmation screens
Week 11	Mar 28 – Apr 3	Micro-interaction design, motion prototyping
Week 12	Apr 4 – Apr 10	Final prototype assembly and usability walk-throughs
Week 13	Apr 11 – Apr 17	Compilation of research findings, visual assets, and documentation
Week 14	Apr 18 – Apr 25	Final report, presentation prep, and submission

2.2 Scope

This project is limited to improving the actual cinema ticket selling machine's touch-screen interaction experience. It focuses on accessibility, usability, visual hierarchy, and user interface flow in public places. Hardware engineering, backend ticketing systems, third-party integration, and web-based or mobile booking solutions are not included in the scope. Public kiosk situations are the exclusive focus of all research, prototyping, and testing.

CHAPTER 3

LITERETURE STUDY

Self-service kiosks' introduction into public spaces like movie theaters has had a big impact on how people use digital interfaces in recent years. It is anticipated that these technologies will provide ease, speed, and autonomy. However, a number of studies have pointed out enduring usability issues that restrict their usefulness. The System Usability Scale (SUS) was used to evaluate movie ticket kiosk interfaces, and the results showed that many users had trouble choosing seats and traversing confusing visual hierarchies. Their study highlighted that during the booking process, consumers frequently experienced confusion due to the interface layout, labeling, and lack of obvious feedback indicators. In addition to delaying the transaction, these annoyances occasionally caused consumers to give up on the procedure completely. In contrast, the study by Yusof and Halim (2020) focused on the design and evaluation of a mobile e-ticketing application developed using a user-centered design approach. Through iterative design cycles, wireframe testing, and user feedback, their prototype achieved a significantly high SUS score of 81.6, indicating excellent usability. Their work demonstrated that incorporating user input from early design stages and refining interface elements based on real-world testing significantly improves ease of use, task completion rate, and overall satisfaction. Together, these studies underline the importance of prioritizing intuitive interface structures, clear visual hierarchy, and accessibility standards when designing ticketing systems, whether kiosk-based or mobile. They also provide a foundational basis for exploring how UX research methods—such as usability testing, journey mapping, and heuristic evaluation—can inform more inclusive, consistent, and enjoyable user experiences for digital ticketing platforms. For this project, these findings serve as key references to frame both the problems with current kiosk systems and the methodologies that can be used to design improved solutions. (Yusof, 2020)

3.1 Primary Research

Primary research was carried out using field visits, user interviews, surveys, and interface analysis of the PVR Quick Tix kiosk in order to comprehend the usability issues with the current movie ticket selling machines. To find pain points, the study looked at user interactions as well as technological specifications. Key concerns include incorrect seat color codes, a non-intuitive UI, a lack of language alternatives, and inadequate screen-to-card payment system synchronization were brought to light by observations and feedback from ten distinct customers. Empathy mapping and survey results also indicated that more user-friendly navigation, less distracting advertising, and better accessibility were required. The identification of user

demands and possible areas for design intervention was informed by these insights. (Karin Siebenhandl, 2013)

3.1.1 PVR Quick Tix ticket vending machine overview

PVR Cinemas installed the PVR Quick Tix, an automated self-service kiosk system, to enable quicker ticket purchases. Its user-friendly and effective design enables consumers to:

- Book movie tickets right away without having to wait in line.
- Make all payments without using cash.
- Print tickets and access reward accounts.
- Function as a solo or wall-mounted system.

Despite these benefits, usability issues still exist, especially for older people, new users, and people with cognitive or physical disabilities.

3.1.2 Physical Configuration and Accessibility

The kiosk measures approximately 170 cm in height, with the interactive interface occupying 92 cm vertically and spanning 50 cm in width. Accessibility becomes a concern, particularly for wheelchair users and individuals of shorter stature. The card swipe terminal and ticket slot are located in the lower quadrant, often missed by users due to poor visual differentiation and improper reachability. These ergonomic constraints were observed to increase cognitive and physical effort, contradicting the kiosk's purpose of reducing transaction time.

- Overall height: 170 cm (Screen: 92 cm, Base: 78 cm)
- Width: 70 cm total (Interactive screen: 50 cm)

Figure 2: Dimension of PVR movie ticket machine

3.1.3 Interface Mapping and Component Breakdown

The interactive screen is subdivided into three zones: the top zone plays continuous video advertisements, the middle zone features the core transactional interface, and the bottom zone accommodates input/output devices and static promotions. While the multitiered layout theoretically optimizes screen space, it introduces cognitive

overload due to the lack of hierarchical focus. Users frequently divert attention between areas, resulting in slower decision-making and procedural delays.

Figure 3: Interface Layout

3.1.4 Observational Findings: User Behavior and Interaction Flow

To investigate real-time user involvement with the kiosk, a number of in-situ observations were carried out in busy movie theater settings. Usually, users follow a straight line of steps: picking a movie, picking seats, paying, and getting tickets. However, there were a lot of interruptions, particularly while choosing a seat and confirming the payment. Expert users expressed frustration with the slow interface responsiveness, while novice users showed a strong reliance on on-site personnel. Distractions from advertisements and system slowness were frequent sources of annoyance.

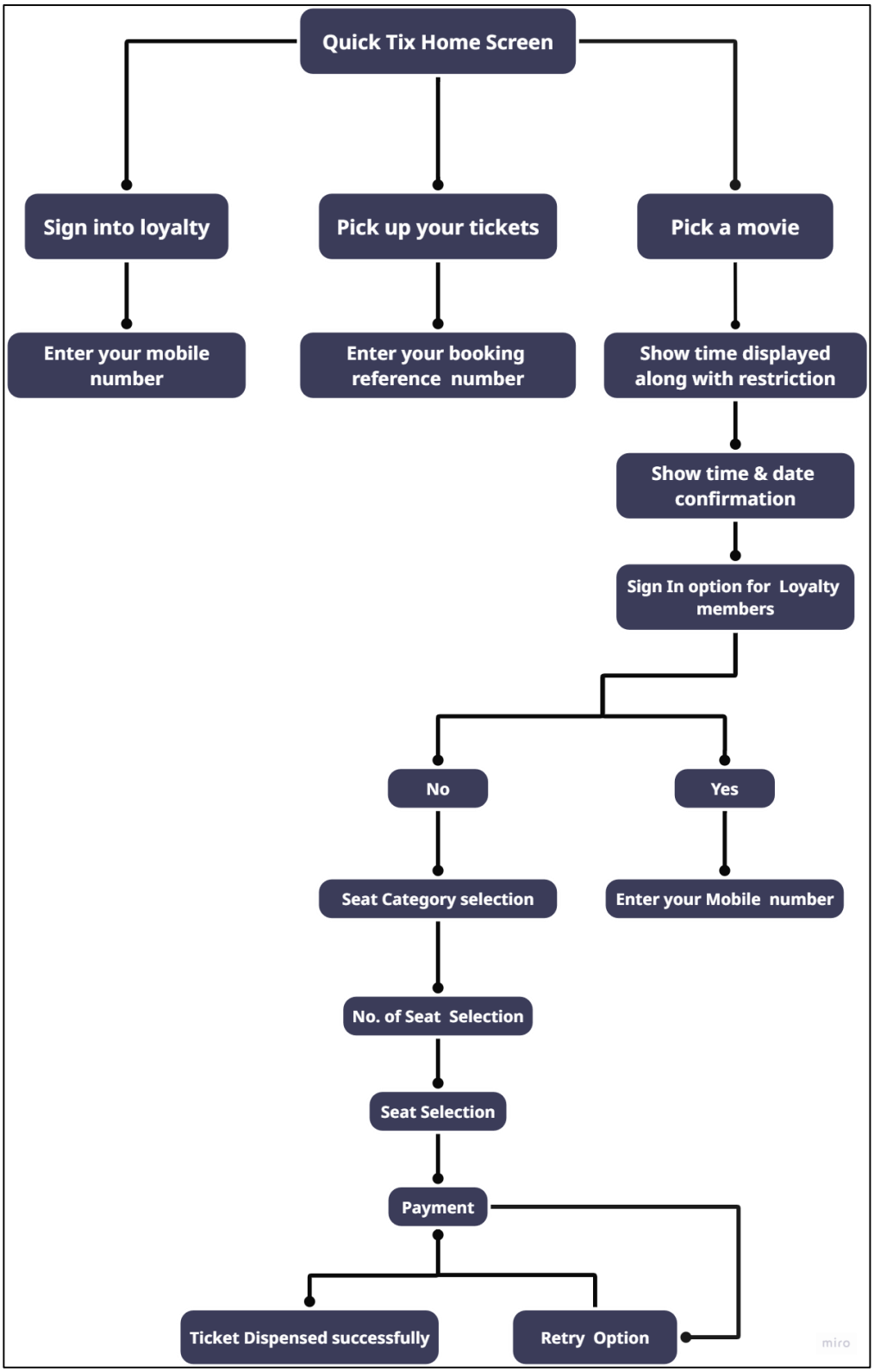


Figure 4: Workflow of existing pvr ticket machine

3.1.5 Heuristic Evaluation

To find the main usability problems with the PVR Quick Tix movie ticket vending machine interface, a heuristic review was carried out using Nielsen's ten usability criteria for user interface design. Actual use-case screenshots provided visual proof to support the evaluation.

3.1.5.1 Visibility of System Status

The system provides moderate visibility of its current state. Feedback such as the time and date as shown in figure 5(c), current step indication (e.g., “Next” and “Back” buttons in figure 5(a), and show timing confirmation figure 5(b) help users stay informed. However, there is a lack of feedback during processing states like payment, leading to user confusion during transactions.

Figure 5: (a) New/Next screen on top (b) Show time appears when movie is selected (c) Date & time indication

3.1.5.2 Match Between System and the Real World

The system uses familiar metaphors such as seat icons as shown in figure 6 (a) and card swipe illustrations as shown in figure 6 (b) to mirror real-world actions. This alignment enhances intuitive understanding. However, the metaphorical icons, though helpful, lack labels or tooltips, which may confuse new users.

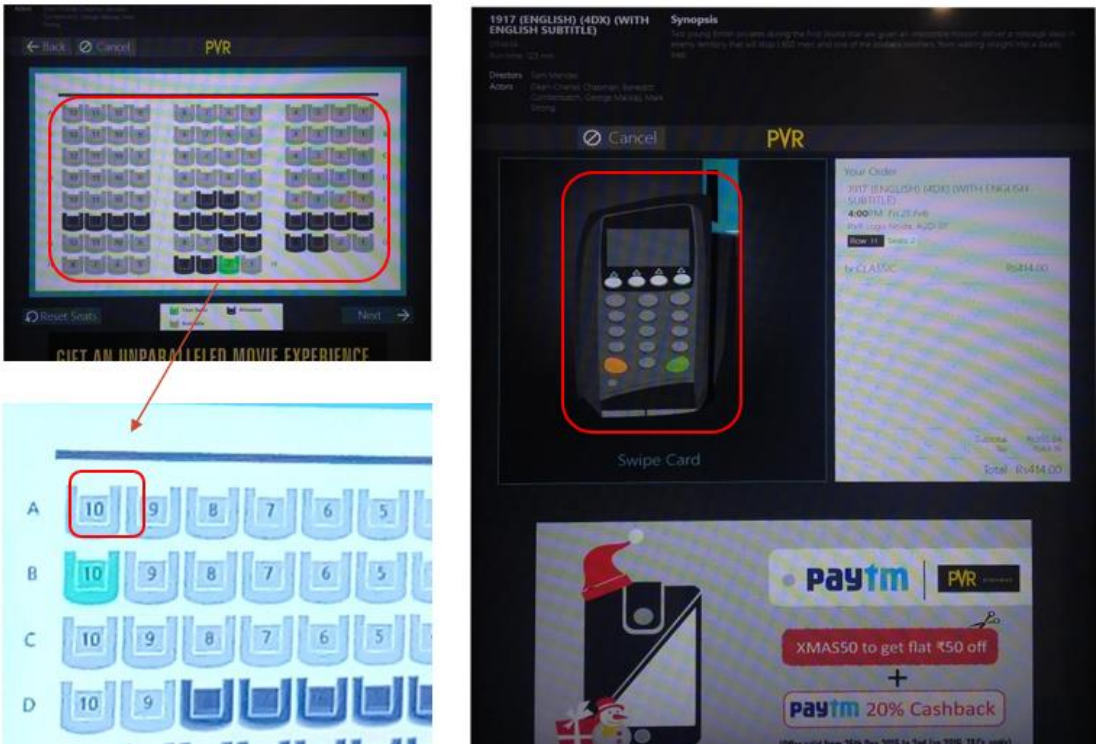


Figure 6: (a) Seat icon *(b) Card swipe representation*

3.1.5.3 User Control and Freedom

Basic controls like the cancel and reset options as shown in figure 7 (a) and (b) provide users with the freedom to undo actions or change selections. Nevertheless, the absence of an easily accessible home or restart button limits broader navigational freedom.

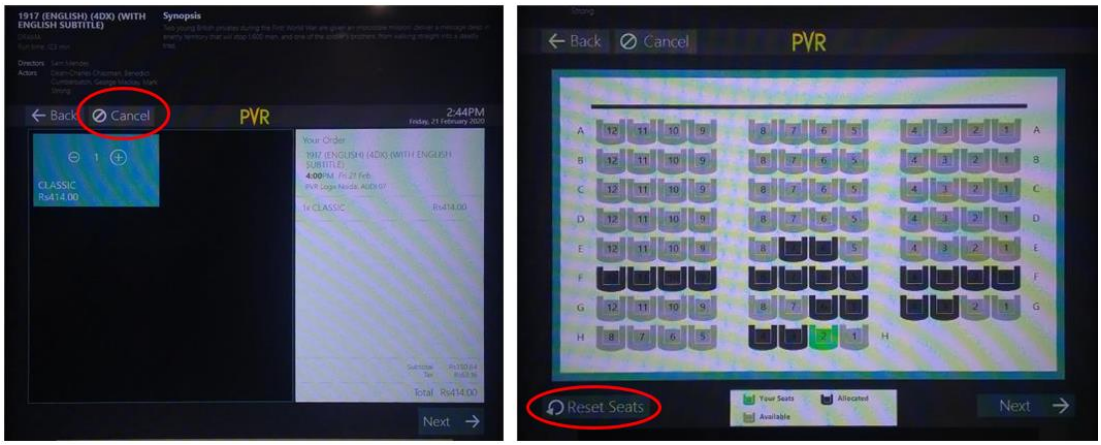


Figure 7: (a) Cancel option *(b) Reset seat option*

3.1.5.4 Consistency and Standards

Inconsistencies in interface layout create usability friction. While controls like "Cancel", "Back", and "Next" are consistently placed as shown in figure 8 (a), visual hierarchy and alignment deviate from app-based standards users may be familiar with as shown in figure 8(b). Moreover, multiple seat icons and placement of restrictions in figure 8(a) show inconsistency in user flow.

Figure 8: (a) Restriction (b) Cancel, back and next button (c) Final bill at right hand bottom screen

3.1.5.5 Error Prevention

Preventive measures such as age restrictions and bold show time confirmations as shown in figure 9 (a) to (c) help reduce user error. However, these are not comprehensive. Error-prone areas like payment or language selection lack preventive prompts or fall back options.

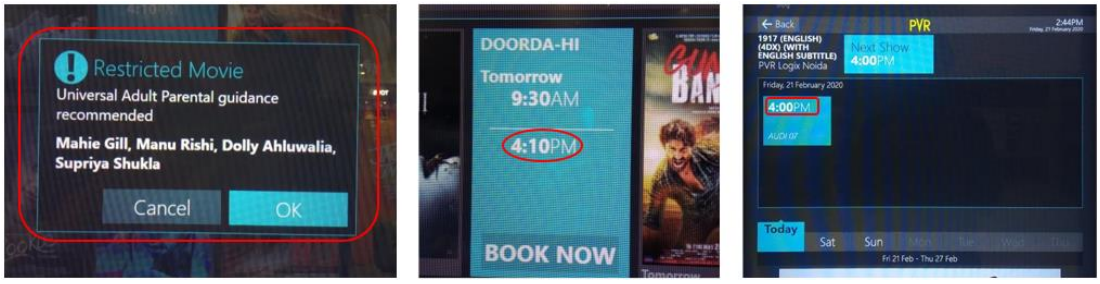


Figure 9: (a) Censor warning (b) Shows time in bold (c) Twice conformation for show time

3.1.5.6 Recognition Rather Than Recall

Visual cues such as movie posters paired with titles as shown in figure 10 reduce memory load by enabling users to recognize rather than recall information. This is particularly useful in a time-sensitive environment like a vending kiosk.

Figure 10: Movie shows along with movie names

3.1.5.7 Flexibility and Efficiency of Use

The system is primarily optimized for experienced users. It lacks accelerators or shortcuts for frequent users and is not inclusive for diverse user groups. The machine height (~90 cm touchscreen center, accessible only for users above 130 cm) makes it difficult for children or wheelchair users. Furthermore, the machine supports only one language and only card-based payment options, limiting accessibility and flexibility.

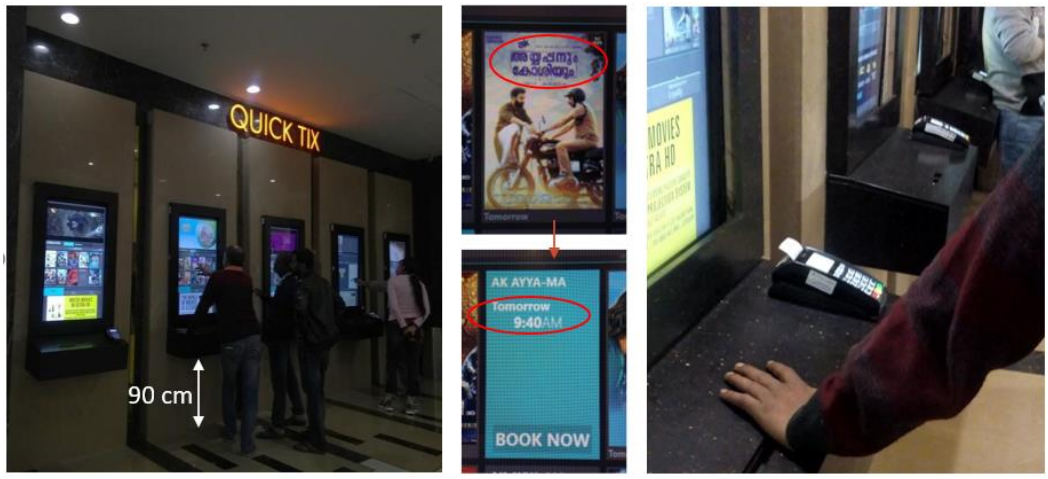


Figure 11: (a) Not accessible for person on wheel chair (b)Language limitation to only one language (c) Accept only credit/debit cards

3.1.5.8 Aesthetic and Minimalist Design

The visual interface has cluttered due to advertisements, repetitive movie posters, and auto-playing synopses as shown in figure 12. These elements distract users and interfere with the core task of ticket booking. The screen fails to adopt minimalist design principles, affecting focus and task flow.

Figure 12: (a) Advertisement continuously which is distracting (b) Multiple poster for same movie (c) Movie trailer plays

3.1.5.9 Help Users Recognize, Diagnose, and Recover from Errors

Although the kiosk displays errors using plain language (Figure 9c) and offers options like retry and back (Figure 13(a) and (b), these are sparse and lack prominence. No real-time assistance or tutorial aids are provided, leaving users—especially first-timers—unsupported during failures.

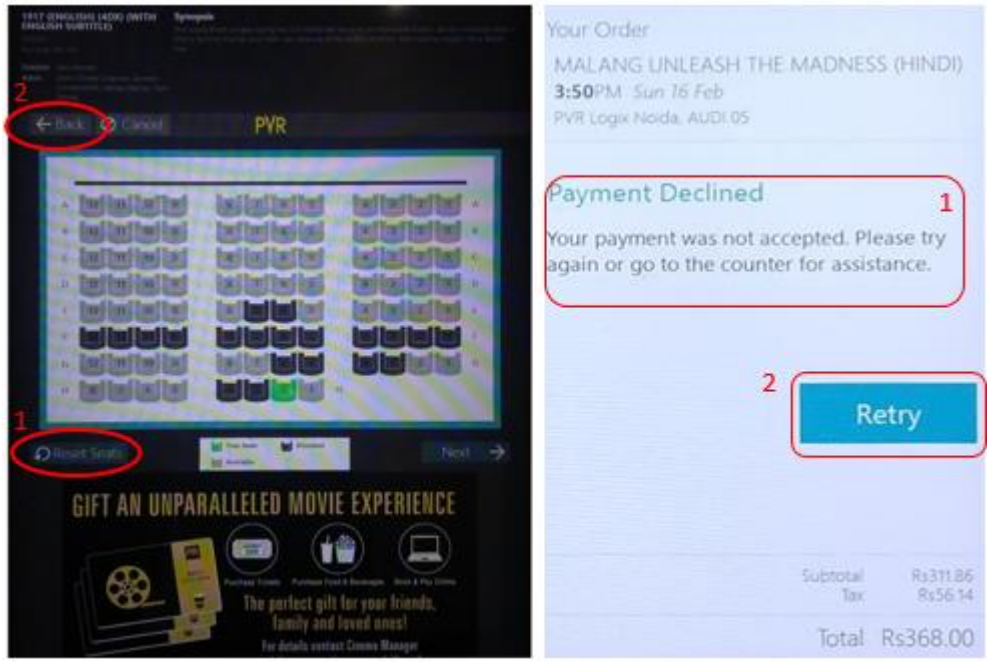


Figure 13: (a)(1)Reset seat option (2) Back button (2) Retry option at payment screen (b)(1) Payment error written in plain language

3.1.5.10 Help and Documentation

There is a complete absence of on-screen help features, manuals, or human assistance nearby. No audio cues or tooltips has provided, making the system unfriendly to visually impaired or digitally inexperienced users.

3.1.6 User-Centric Interview

To deepen the understanding of experiential challenges, semi-structured interviews were conducted with ten users ranging in age from 18 to 46 years. The participants were selected to reflect a diversity of digital fluency and cinema-going frequency. Common feedback included difficulties in seat categorization, lack of multilingual support, ambiguity in on-screen prompts, and misalignment between physical inputs and visual feedback. Notably, younger users criticized the promotional interruptions, while older users reported hesitation and confusion around payment processes. The questionnaire are mentioned below.

1. Can you describe your last experience using a movie ticket vending machine?
2. How often do you prefer using vending machines over buying tickets at the counter or online?
3. Was the process easy to understand and follow?
4. Were there any steps where you felt confused or stuck?
5. Approximately how long did it take you to complete the transaction?
6. Did you feel the booking process was too long, too short, or just right?
7. Were the options and buttons clear and easy to find?
8. Did the screen feel cluttered or organized? Was the payment process reassuring and smooth?
9. What changes or improvements would you suggest to make the experience better?
10. Was the machine accommodating for different languages or accessibility needs?
11. Would you like the machine to remember your past preferences (like favorite seat type or language)?

An overview of user interview replies that demonstrate the range of expectations, difficulties, and experiences encountered when using the PVR Quick Tix self-ticketing machine.

Table 2: User interview responses

USER	AGE	KEY ANSWERS
Priyadarshini	**18**	First time using, found it exciting but a little confusing; prefers simple buttons; worried about payment safety.
Amit	**19**	Likes using vending machines; wanted faster booking; screen a bit cluttered; trusted seat info.
Suraj	**22**	Uses vending machines often; booking felt easy; wished for more language options; smooth payment.
Aryan	**24**	Prefers vending over counters; simple layout appreciated; suggested saving card info securely.
Utsav	**26**	Found navigation decent; disliked ads popping up; liked clear pricing and instant ticket printout.
Prerit	**26**	Frequent moviegoer; quick process valued; disliked multiple confirmation screens; loved responsive touchscreen.
Yogita	**35**	Uses vending machines during weekends; booking time good; suggested loyalty discounts shown upfront.
Alka	**42**	Likes vending for family tickets; some steps unclear initially; trusted machine for seat selection; smoother payment desired.
Dinesh	**40**	Found screen text small; needed better seat map zoom; appreciated speed; liked language switching option.
Sanjay	**46**	Struggled slightly with touchscreen sensitivity; loved seat availability display; overall found it better than counter queues.

3.1.7 Survey

A structured Google Form survey was distributed to gather broader user feedback. Responses were visualized using pie charts to illustrate user preferences, frequency of use, satisfaction levels, and common issues encountered.

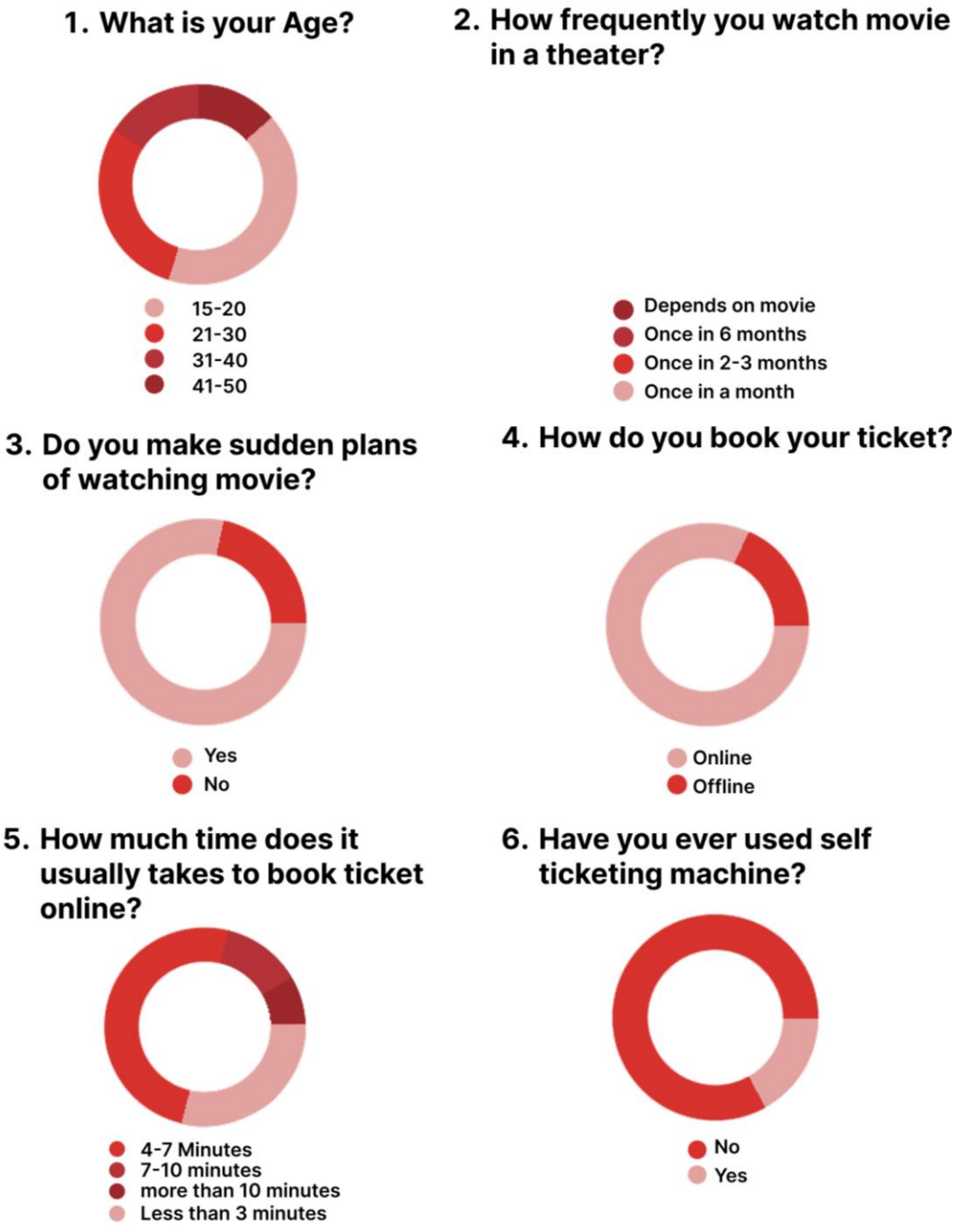


Figure 14: Pie chart of user survey results

3.1.8 User's feedback

Direct quotes from respondents provided rich insight:

- *"I couldn't understand the color coding of seats…"* – Sandeep, 21, novice user
- *"Loyalty member wala question samajh nahi aaya"* – Naveed, 28, novice user
- *"Screen ke baad ek confusion ho jata hai…"* – Priyadarshini, 18, experienced user

3.1.9 Empathy Map

An empathy map was created using the data gathered in order to illustrate the requirements, behaviors, feelings, and difficulties of users. In order to inform future design choices, this tool assisted in synthesizing user-centric insights.

Says	**Thinks**
• "It should be fast, I don't want to miss the start." • "I wish the machine had my language." • "I don't know what payment options are accepted." • "This ad is blocking my screen!" • "I can't reach the upper screen buttons." • "I wish there was someone to help.	• "Will it double charge me if I tap twice?" • "Is my payment safe here?" • "I hope I get a good seat." • "This is too complicated for a quick ticket." • "I feel anxious when it takes time."
Does	**Feels**
• Quickly browses movies without reading details. • Tries to find a payment option as fast as possible. • Gets frustrated if anything delays the booking. • Sometimes asks nearby staff or friends for help. • Leaves the kiosk if the queue builds up	• Excited to watch the movie but stressed about delays. • Frustrated if flow is slow or unclear. • Anxious if payment seems uncertain. • Relieved when the process is smooth and fast

Figure 15 Empathy map

3.1.10 Pain points

Synthesis of data across observational and participatory methods yielded recurring themes of disorientation, poor information architecture, and insufficient accommodation for linguistic diversity. The disjoint between the card payment terminal and on-screen prompts caused failed transactions. Furthermore, the absence of assistive affordances—such as voice guidance or tactile feedback—rendered the kiosk non-inclusive. Users expressed frustration over the interface's lack of preview or filtering mechanisms during movie selection.

- Users frequently express difficulty over the payment process and seat selection.
- The system does not support several languages, making it difficult for non-English speakers to navigate.
- The screen design raises accessibility concerns, particularly in terms of height and reach for all users.
- Advertisements disrupt the ticket booking process, resulting in delays and dissatisfaction.

3.1.11 Analysis and Insights

The results of surveys, user interviews, and observational research were used to identify a number of important insights about the PVR Quick Tix self-ticketing machine's accessibility and usability.

- The Quick Tix machine's height is suitable for the majority of users, but people with disabilities cannot use it.
- The Quick Tix machine and the card swipe device are not in sync, which interferes with the transaction process's continuity.
- There aren't enough pictures or images on the machine interface to make it obvious where the ticket printing area is.
- Particularly for inexperienced or first-time users, the general interface design lacks intuitiveness.
- Advertisements take up too much screen real estate, detracting from the main ticketing features.
- The lack of necessary navigation buttons makes it challenging for users to navigate the booking procedure with ease.
- The buttons on the screen are not in the best positions, which makes interaction more difficult and confusing for the user.

3.1.12 Potential intervention Areas

The section describes the shortcomings that have been found and points forth some ways to enhance the Quick Tix machine's overall user experience.

- Accessibility for users who do not speak English is hampered by the interface's English-only functionality and lack of multilingual support.
- The lack of clarity in the display of payment alternatives causes uncertainty throughout the transaction procedure.
- The lack of on-site user support negatively impacts the experience of inexperienced or difficult users.
- Multiple posters for the same film lead to confusion for users and visual clutter.
- Overuse of screen real estate by advertisements takes away from the main purpose of purchasing tickets.
- Users are unnecessarily distracted during the booking process by the constant presentation of movie synopses.
- Transactions are disrupted by the ticket kiosk's and the card swipe machine's poor synchronization.
- Because it lacks inclusive design elements, the machine is inaccessible to people in wheelchairs or those who are shorter in stature.
- There are no alternatives for sorting or filtering to choose movies quickly and effectively.

This structured primary research forms the foundation for informed, human-centered design interventions aimed at enhancing the movie ticketing kiosk experience.

3.2 Secondary Research

To develop a movie ticket vending kiosk that is efficient, intuitive, and accessible, it is essential to base the design process on established research and empirical findings concerning self-service technologies, user interface design, ergonomics, and anthropometric principles. The following synthesis presents critical insights that contribute to the informed development of an enhanced kiosk interface. (Li, 2023)

3.2.1 Usability of Existing Cinema Kiosks

A major reference study by Tsai et al. (2023) evaluated the usability of self-service ticketing kiosks across three cinema chains. The study revealed critical shortcomings in current kiosk systems

- Longer-than-expected task completion times, particularly in operations like modifying orders and scanning tickets.

- High error rates, especially in interfaces with unclear prompts and poor navigation flows.
- Low user satisfaction scores, with all kiosks failing to meet usability benchmarks based on SUS (System Usability Scale) and QUIS (Questionnaire for User Interface Satisfaction) ratings.

Notably, Cinema C, which offered a simpler interface with fewer steps**,** outperformed the others in terms of speed and error reduction. However, it lacked flexibility in correcting mistakes, requiring users to restart the entire process for any error. (Faishal Muhammad, 2017)

3.2.3 Ergonomics and Anthropometry

Human factors such as reach zones, eye level, and elbow height are essential in designing interfaces for usability and comfort. Referencing standard anthropometric data for the 50th percentile user.

- Optimal eye height is considered around 1500 mm for display screens.
- Control interfaces are ideally placed at elbow height (1000 mm) for ease of access. (Kim, 2021)

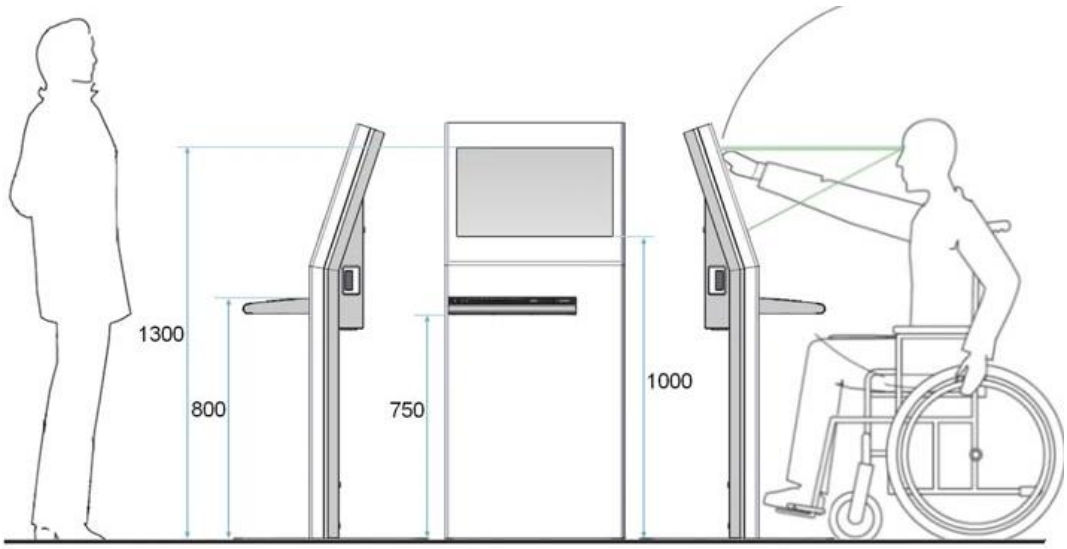


Figure 16: Anthropometry for kiosk

The reach zone diagram highlights three zones:

- Zone 1 (green): Easy, comfortable reach—ideal for frequent controls.
- Zone 2 (yellow): Requires moderate effort—suitable for less frequent interaction.
- Zone 3 (red): Maximum reach—should be avoided for core functions.

These design principles reduce fatigue and support inclusive accessibility, particularly for users with varying physical capabilities. (al., 2023)

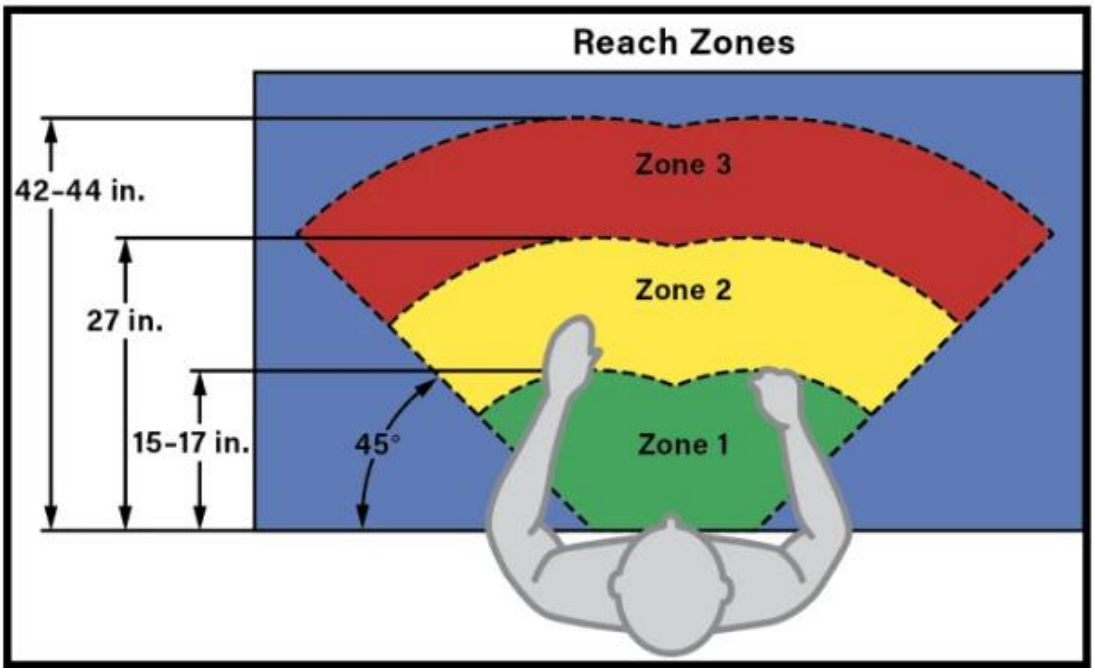


Figure 17: Reach zones for hands

3.2.3 Visual Ergonomics for Display Viewing

Visual ergonomics studies show that the optimal display angle **lies** within a 20° to 40° cone from the line of sight. Displays placed outside this range can increase eye strain and reduce clarity, especially under low-light conditions like those in cinema lobbies. According to the ergonomic field of view:

- Visual information should lie within a 30° field from the central line of sight**.**
- Displays should avoid excessive head or eye rotation beyond 60°, which leads to discomfort during prolonged use.

These insights are instrumental in designing kiosks that are intuitive and physically comfortable for all users. (Michael Sengpiel, 2016)

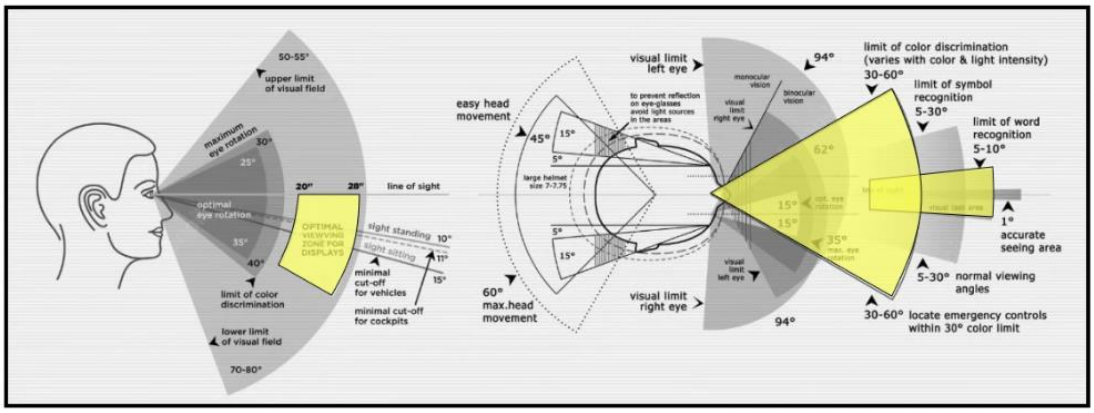


Figure 18: visual ergonomics

3.2.4 Feature Benchmarking

Comparing existing ticket kiosks from PVR, INOX, and Cinepolis, there is considerable variance in functionality:

- All provide touch screens**,** but only some offer food and beverage ordering**,** receipt slots**,** or voucher inputs**.**
- Only Cinepolis includes a camera, possibly for facial recognition or security, while INOX lacks basic features like a receipt slot**.**

This benchmarking illustrates opportunities to unify critical features across platforms while eliminating unnecessary ones that complicate the interface. A focus on essential, high-frequency tasks (ticket purchase, selection, and payment) can significantly streamline the user journey.

CHAPTER 4

IDEATION

In order to redefine the movie ticket vending kiosk's customer experience, the brainstorming stage is essential. It entails combining research findings, spotting design possibilities, and using organized creative thinking to provide original solutions. The results of brainstorming sessions, the creation of user personas, wireframes, workflows, and other ideation techniques that influenced the ultimate design direction are presented in this chapter.

4.1 Brainstroming

The ideation process began with a focused brainstorming session, structured using a mind map that explored user needs, pain points, and potential interface features. The primary goal was to envision a kiosk that is accessible, intuitive, and inclusive across demographic and physical diversity.

- Simplified Flow: Make the booking process more efficient by combining the payment and seat selection processes into a single, clear step. In order to prevent misunderstanding and decision fatigue, display the accepted payment methods first.
- Multilingual Interface: Ensure inclusivity and usability for non-English speakers by integrating support for key Indian regional languages (such Hindi, Tamil, Bengali, Telugu, etc.) directly from the start screen.
- To accommodate users of different heights, including those in wheelchairs, the kiosk should have an adjustable touchscreen height. Put voice-assisted navigation into place to help users who are blind or disabled.
- Ad-Free Booking Journey: Prevent distractions during the actual ticket purchase by restricting adverts to pre-booking or post-booking screens alone.

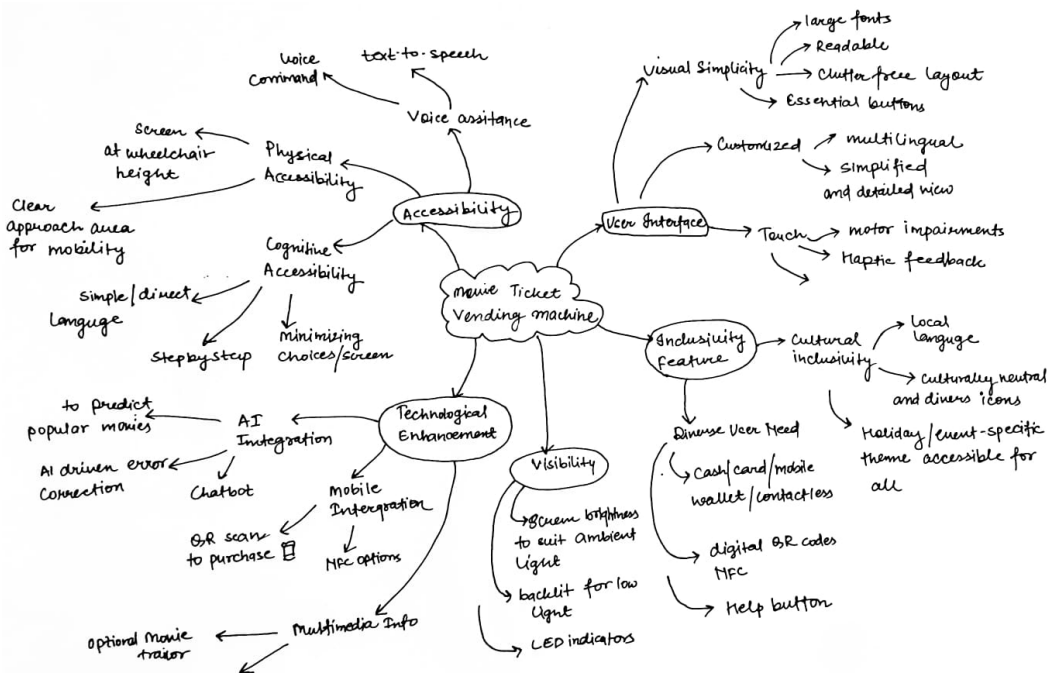


Figure 19: Brainstroming

4.2 User Persona Development

User personas were developed to humanize the design process and ensure that the system serves a diverse audience. These personas were constructed based on observed behavioral patterns, demographic research, and user interviews. Two primary user types were defined below.

USER PERSONA

Name : **Aditi Sharma**
Age : **18**
Occupation : **College Student**
Location : **Mumbai, India**
Tech Familiarity : **High (Uses apps daily, quick with touchscreens)**

Bio:
Aditi is an energetic first-year college student who is passionate about science fiction movies like Interstellar and Avengers. She often watche the latest releases with her group of friends. She prefers digital, cashless experiences and expects everything to be fast and visually simple.

Goals:
- Quickly book sci-fi movie tickets without long processes.
- Easily find English language and sci-fi genre movies.
- Use UPI or wallet payments, no cash.

Behaviors:
- Skips ads, focuses on direct booking.
- Gets frustrated with slow or unclear interfaces.
- Looks for seat availability and trailer before booking.

Pain Points:
- Language limitation (wants option in English).
- Gets confused if posters or movie info are cluttered.
- Dislikes systems without filters (genre, language).

Figure 20: (a) User persona

USER PERSONA

Name : **Rajesh Khanna**
Age : **55**
Occupation : **Government Employee**
Location : **Lucknow, India**
Tech Familiarity : **Moderate (uses phone, but prefers simple tools)**

Bio:
Rajesh is a loyal Bollywood fan, who watches movies only when his favorite actor, like Shah Rukh Khan or Amitabh Bachchan, releases a new film. He prefers traditional methods but is willing to use touchscreen machines if it saves waiting time. Needs very straightforward guidance.

Goals:
- Find and book his favorite actor's movie without confusion.
- Understand payment options clearly (prefers card payment).
- Avoid long queues at the counter.

Behaviors:
- Takes more time to read movie details carefully.
- Looks for Hindi-language movies only.
- Seeks simple navigation and clear instructions.

Pain Points:
- Difficulty understanding touchscreen flow if too complicated.
- No help available nearby if stuck.
- Ads and complicated screens make him nervous.

Figure 21: (b) User persona

4.3 Wireframes

Low-fidelity wireframes were created to explore layout alternatives and structural design. These wireframes focused on:

- Information hierarchy
- Placement of core actions (e.g., Book Now, Cancel)
- Visual prioritization (e.g., show timings, seat maps)
- Integration of accessibility features

This phase allowed for quick iterations and usability testing before moving to high-fidelity mockups. (Simen Hagen, 2010)

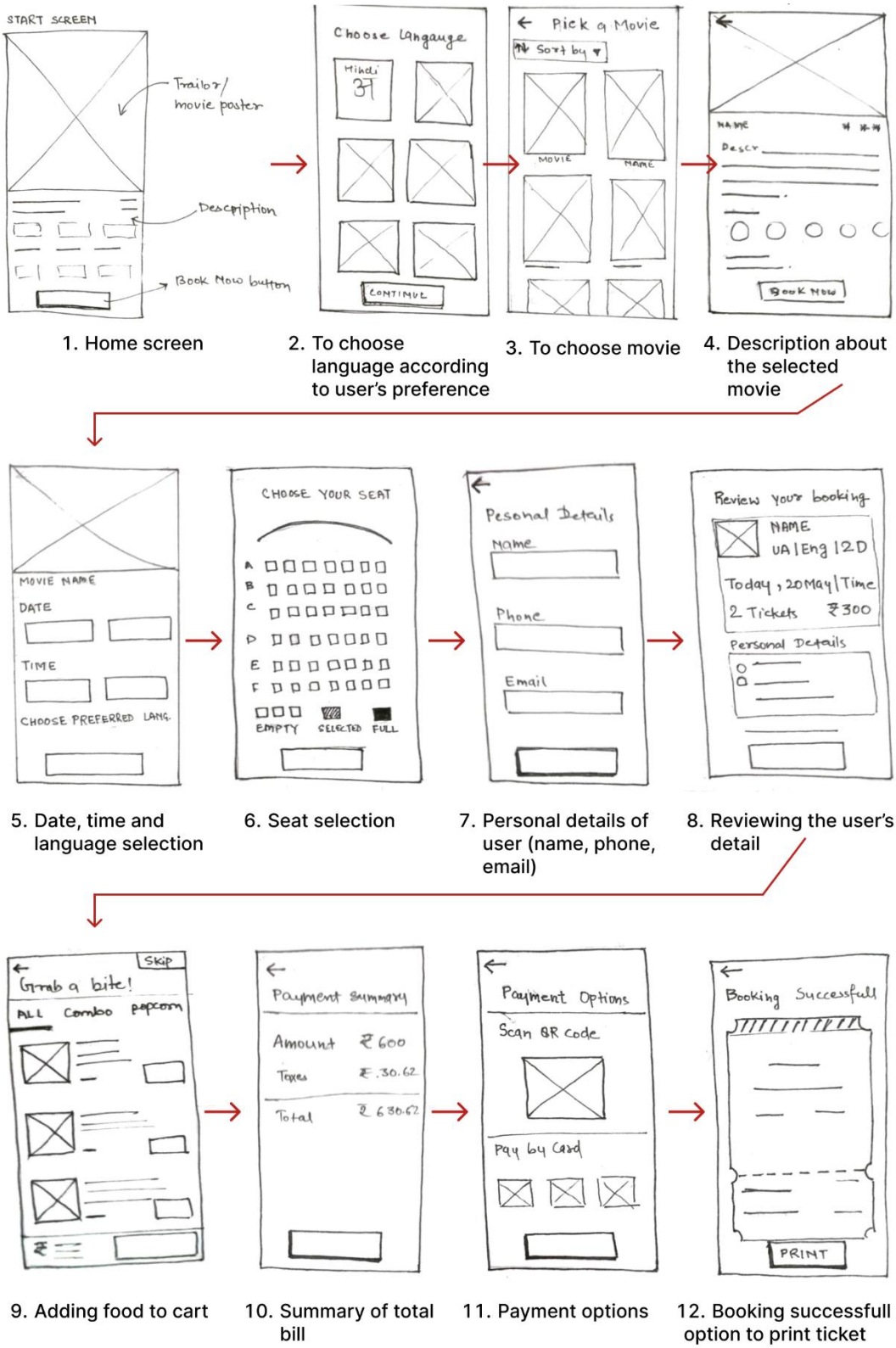


Figure 22: Low fidelity wireframe

4.4 Workflow Mapping

The user flow was redesigned to eliminate friction and improve clarity. Key stages include:

- Language selection
- Movie and timing selection
- Seat selection
- Payment and confirmation
- Ticket print or SMS receipt

By visualizing the flow, bottlenecks such as unclear payment gateways and seat reset confusion were identified and addressed early in the design process.

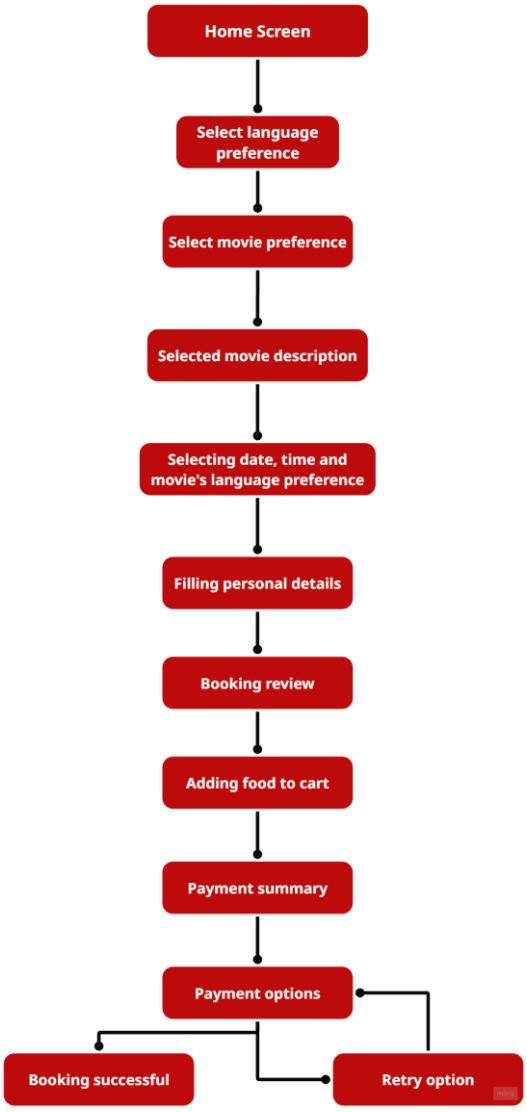


Figure 23: workflow of ticket booking sysem

4.6 Moodboard

A curated moodboard as shown in figure was created to guide the visual and interaction design of the movie ticket vending machine. It informed key decisions on color, layout, accessibility, and tone—emphasizing simplicity, inclusivity, and intuitive user flow suitable for public interfaces.

Figure 24: Moodboard

4.7 Colour Palette

To maintain visual coherence and enhance user engagement, a defined color palette were established for the movie ticket kiosk interface. The primary colors include #212629 (charcoal black) for background and text emphasis, #DD080B (vibrant red)

to highlight calls to action and key interaction points, and #FFFFFF (white) for contrast and readability. This combination ensures strong visual hierarchy and accessibility across screen types.

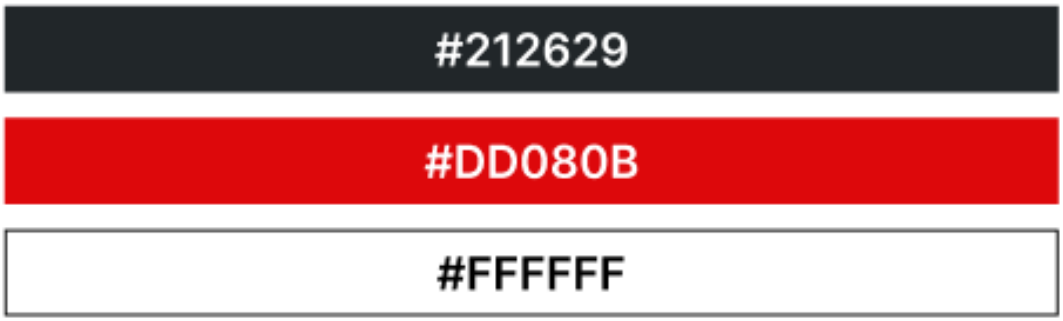


Figure 25: Colors used in interface

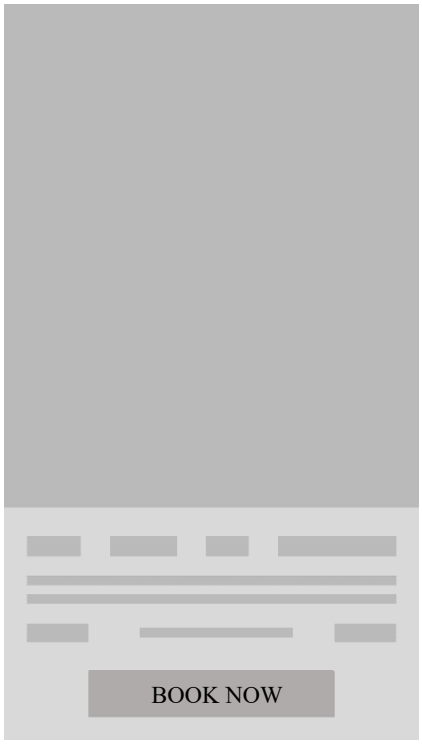
4.8 Typography

The typeface Poppins was chosen for its modern, clean, and highly legible geometric sans-serif style, supporting a user-friendly and professional design language throughout the system.

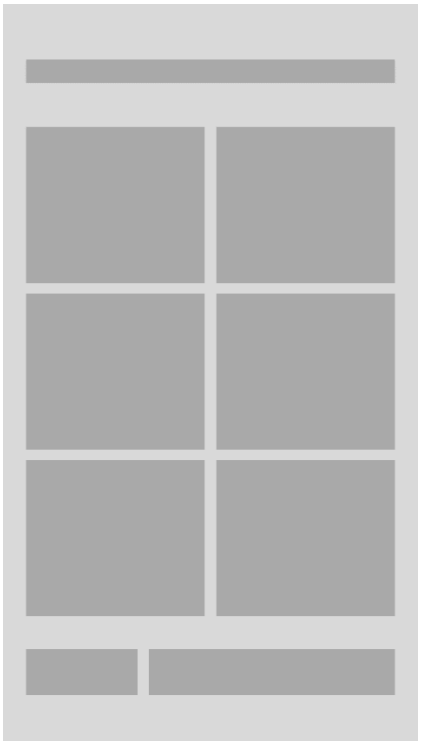
Figure 26: Font used in interface

4.9 Low Fidelity Wireframe

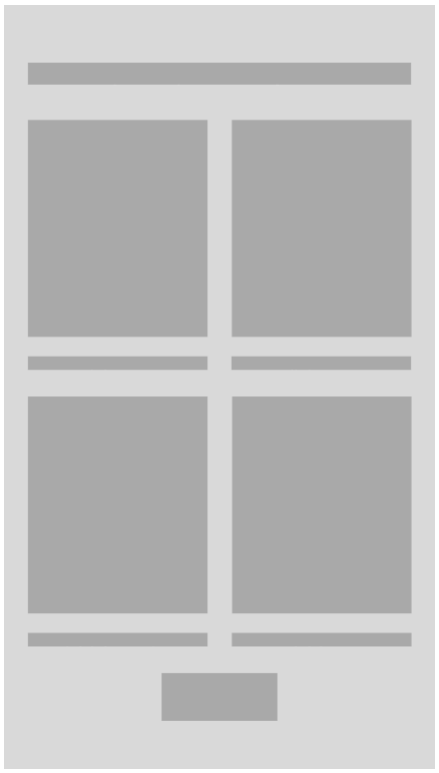
To visualize the initial structure and layout of the movie ticket kiosk interface, low-fidelity wireframes were created. These wireframes focus on the basic placement of key elements such as the welcome screen, language selection, seat booking, and payment flow—without detailing visuals or styling. This early-stage sketch helped map out the user journey and screen transitions, allowing for quick testing and feedback before proceeding to high-fidelity design. The aim was to ensure clarity, accessibility, and intuitive navigation from the very beginning.



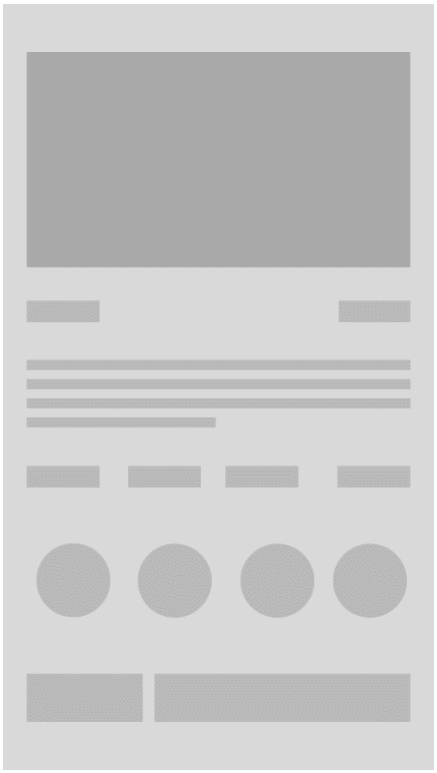
1. HOME SCREEN



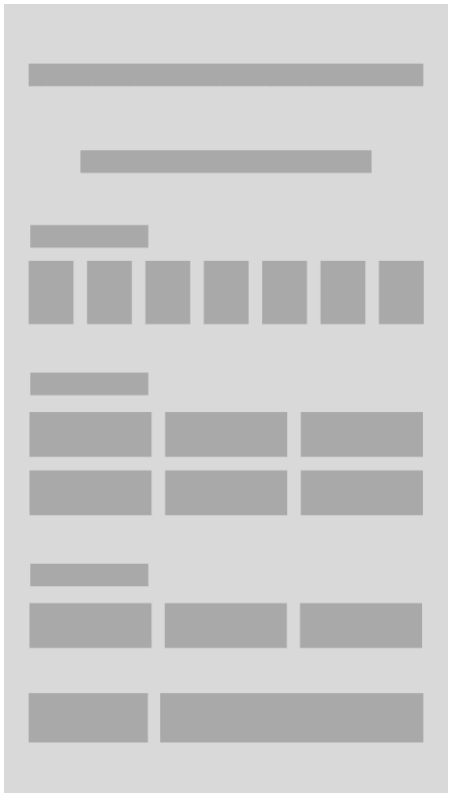
2. LANGUAGE SELECTION SCREEN



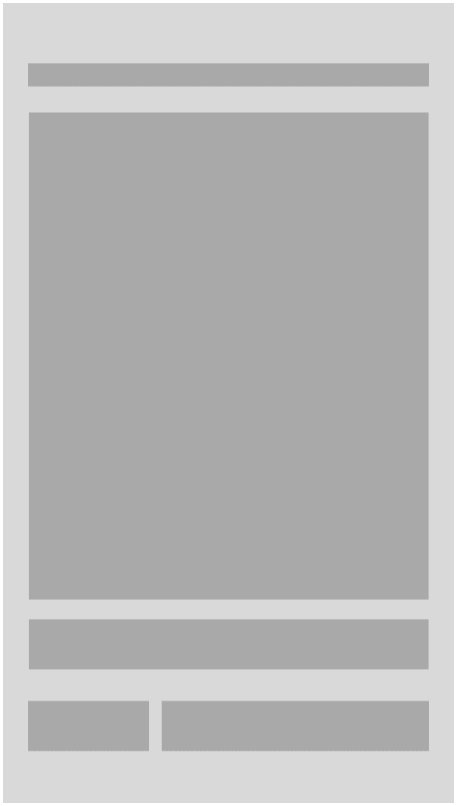
3. MOVIE SELECTION SCREEN



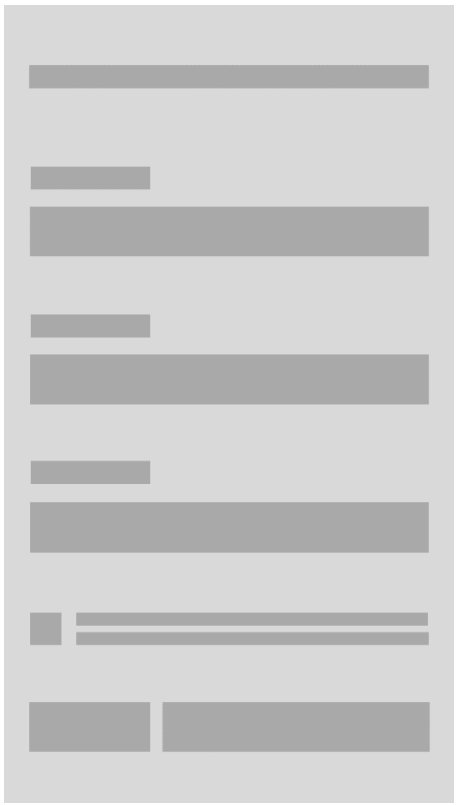
4. MOVIE DESCRIPTION SCREEN



5. DATE, TIME, LANGAUGE



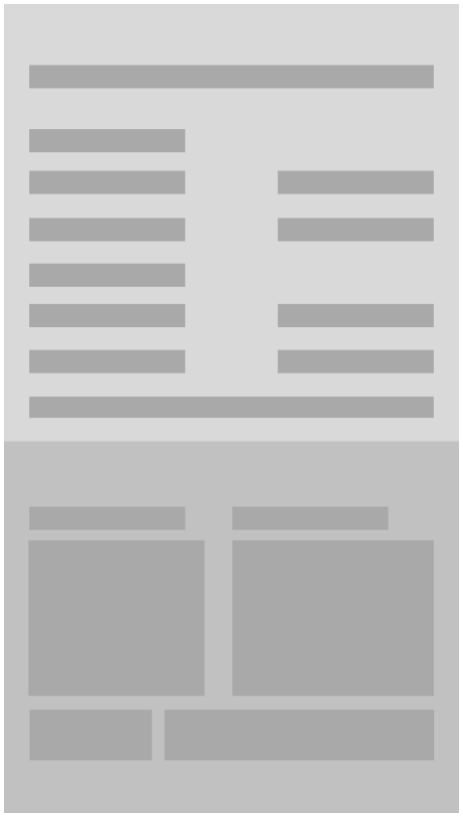
6. SEAT SELECTION



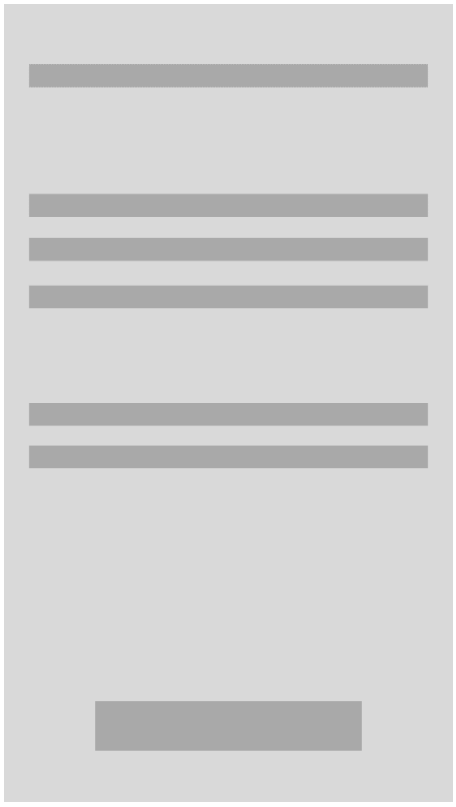
7. PERSONAL DETAILS

8. BOOKING REVIEW

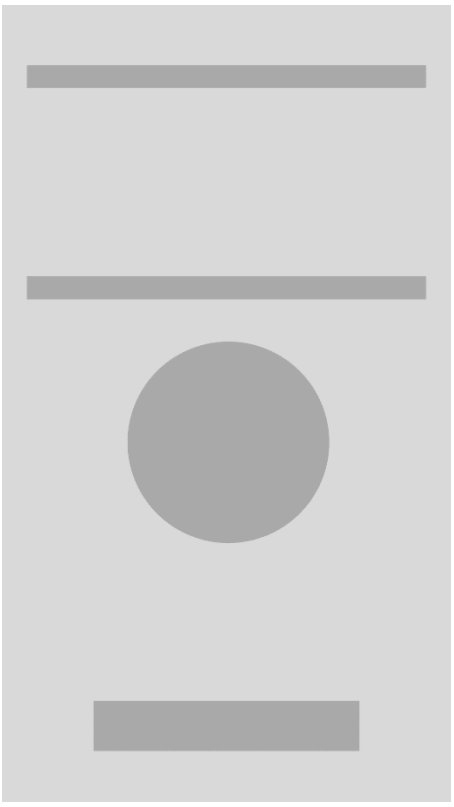
9. FOOD SELECTION



10.PAYMENT DETAILS & OPTION



11. TICKET PRINT



12. CANCEL BOOKING

CHAPTER 5

FINAL DESIGN

The final design phase encapsulates the transformation of research insights and ideation into a cohesive, user-centric interface. The high-fidelity wireframes for the movie ticket kiosk interface are built upon the core principles of clarity, accessibility, and seamless flow. Each screen was designed in alignment with the previously developed low-fidelity wireframes, but with refined aesthetics, precise alignment, and the final visual system—including brand colors (#212629 for background, #DD080B for accents, and #FFFFFF for text) and the Poppins typeface for a clean, modern feel. (Global Movie Ticket Vending Machines Market Research Report 2024(Status and Outlook), 2024)

5.1 Information Architecture

The design journey starts from the home screen and follows a linear, guided architecture that ensures even first-time users can navigate the system with ease. The Information Architecture of the kiosk application is structured into 12 core steps

- Home Screen
- Language Selection
- Movie Selection
- Movie Description
- Date, Time & Language Selection
- Seat Selection
- Personal Details Entry
- Booking Review
- Food Selection (Add-ons)
- Payment Details & Confirmation
- Ticket Print
- Cancel/Retry Options

5.2 High Fidelity Wireframe

The high-fidelity prototypes simulate the real-life interactions a user would experience on a kiosk, enabling us to evaluate final usability before development. From multilingual support and visually accessible buttons to seat categorization and

food integration, the design reflects a holistic approach to digital movie-ticketing tailored for Indian audiences across all demographics.

These screens represent the initial stages of the user flow for the movie ticket vending machine UI, focusing on simplicity, accessibility, and multilingual inclusivity. The Home Screen (Screen 1) immediately engages users with visually dominant movie posters and a clear “Book Now” CTA, reflecting intuitive visual hierarchy. It also presents genre tags, ratings, and language options, helping users make informed choices.

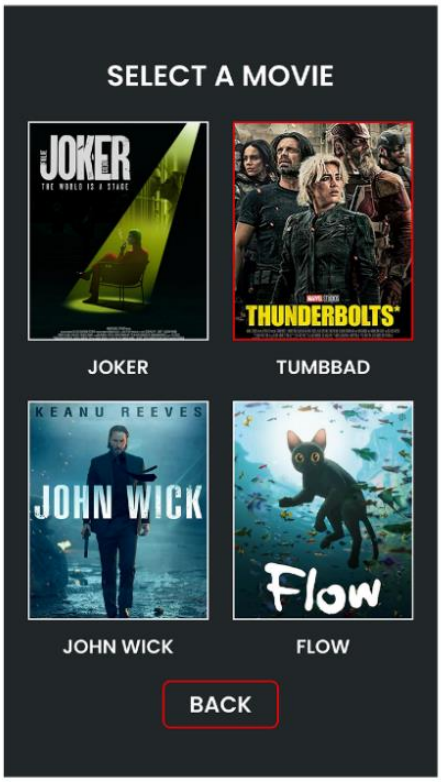
The Language Selection Screen (Screen 2) prioritizes inclusivity by offering six Indian languages along with English, addressing linguistic diversity across user demographics. Clear “Back” and “Proceed” buttons provide easy navigation without overwhelming users.

1. HOME SCREEN

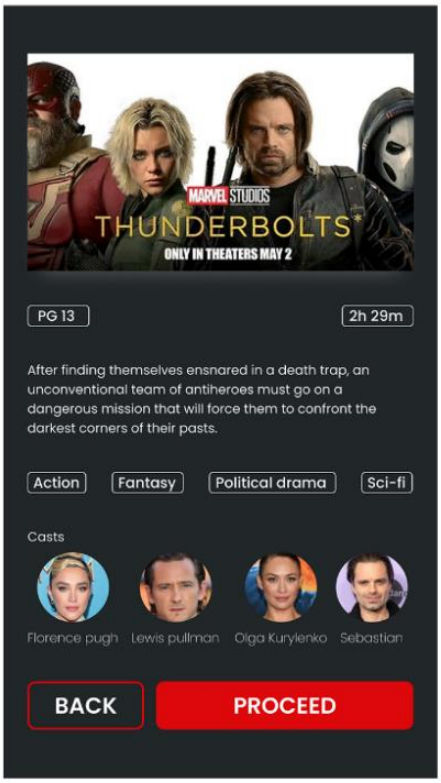
2. LANGUAGE SELECTION SCREEN

In the Movie Selection Screen (Screen 3), movie posters are arranged in a familiar grid format, encouraging quick scanning and selection. The design maintains visual consistency through dark backgrounds and bold labels.

Finally, the Movie Description Screen (Screen 4) delivers essential film details like runtime, rating, genres, and cast members in a concise format. The inclusion of recognizable actor images adds credibility and emotional connection. Each of these screens follows a user-centered design approach, aiming for clarity, cultural relevance, and seamless interactivity



3. MOVIE SELECTION SCREEN

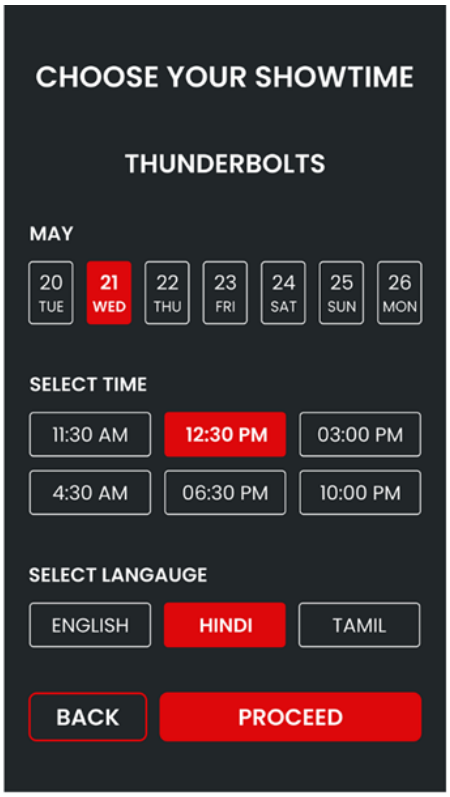


4. MOVIE DESCRIPTION SCREEN

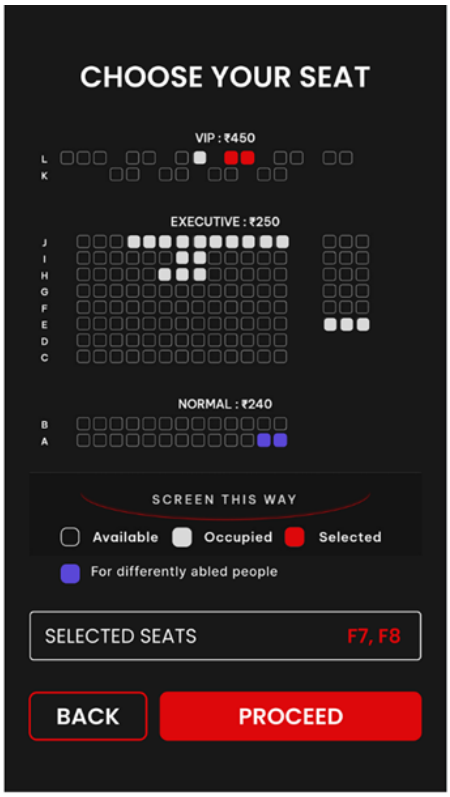
The user flow in these screens is designed to provide a seamless and accessible experience while booking movie tickets via a vending machine interface. The Date, Time, and Language Selection screen allows users to choose their preferred showtime through a vertically aligned layout. Each interactive block—date, time, and language—is clearly defined, with active selections highlighted in red for instant visual feedback. Language options include English, Hindi, and Tamil, ensuring inclusivity across diverse user demographics. Navigation is simplified with prominently placed “Back” and “Proceed” buttons that guide users through each step without confusion.

The Seat Selection screen features an intuitive, color-coded seat map that categorizes available, occupied, and selected seats, including specially designated spaces for differently-abled individuals. Pricing tiers (VIP, Executive, Normal) are clearly marked, and the layout includes a directional prompt—“Screen this way”—to help users orient themselves relative to the screen in a physical space. This visual

interaction enhances decision-making and provides spatial clarity, especially important in a public kiosk environment.



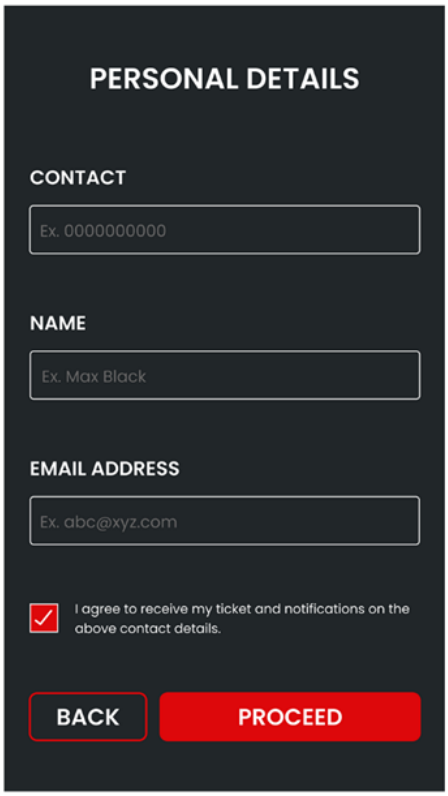
5. DATE, TIME, LANGAUGE



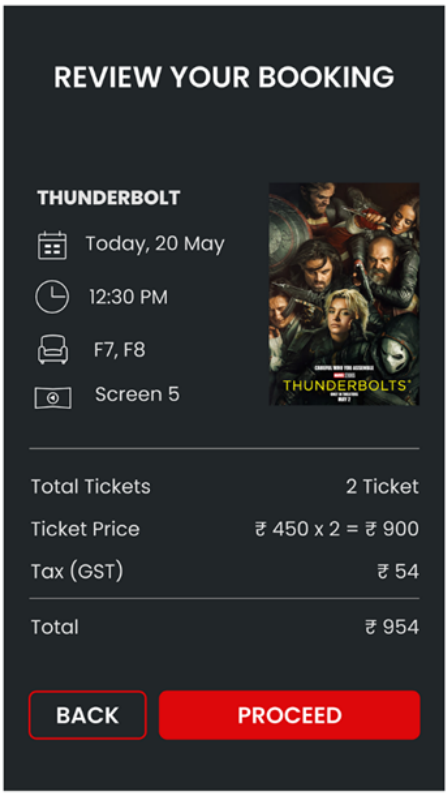
6. SEAT SELECTION

The Personal Details screen is minimal yet effective, collecting essential user information such as phone number, name, and email. Clear placeholder text and large input fields support touch interaction and maintain accessibility. A consent checkbox ensures user awareness and agreement for receiving notifications and e-tickets, aligning with data protection standards.

Finally, the Booking Review screen offers a concise summary of the booking, including movie title, showtime, selected seats, and screen number, accompanied by the movie poster for visual validation. A detailed cost breakdown—including ticket prices and taxes—ensures transparency. Bold typography for the total cost and consistent placement of navigation buttons make the transition to payment smooth and user-assured.



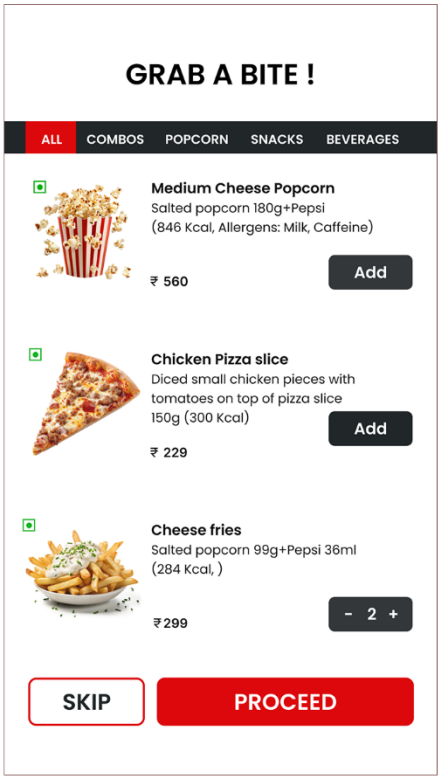
7. PERSONAL DETAILS



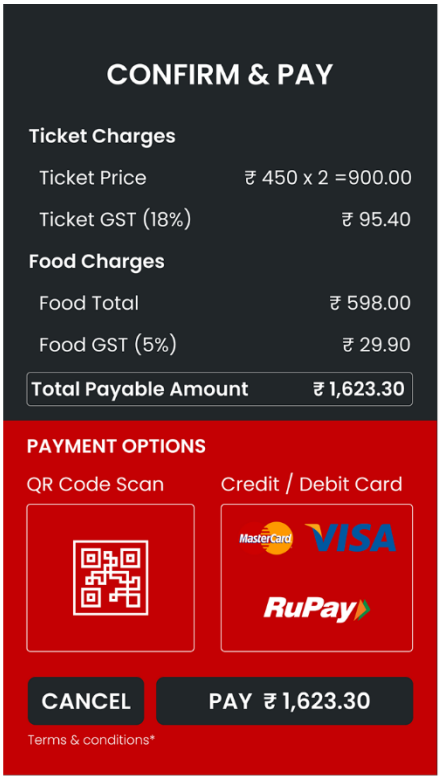
8. BOOKING REVIEW

The final stages of the movie ticket vending machine interface focus on enhancing convenience, clarity, and completion of the booking journey. The Food Selection screen offers a categorized menu (Combos, Popcorn, Snacks, Beverages) with appealing visuals and nutritional details, encouraging optional add-ons. Users can easily adjust quantities or skip the step, maintaining control and flexibility. The design promotes quick decision-making through clean layouts and prominent “Skip” and “Proceed” buttons.

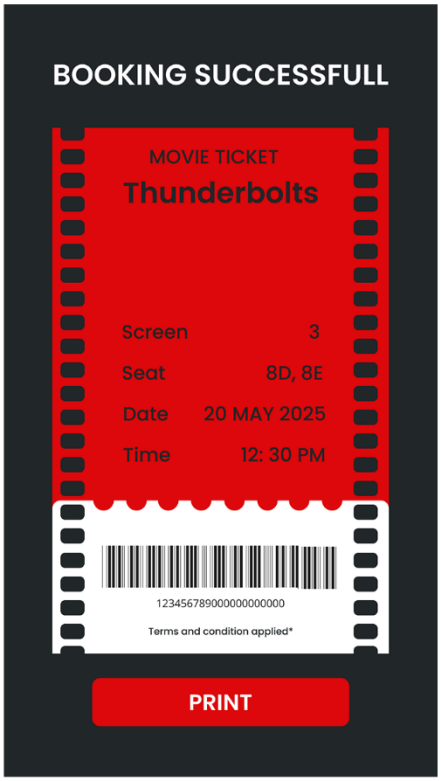
The Payment Details & Option screen consolidates ticket and food charges with itemized tax breakdowns, ensuring full cost transparency. The total payable amount is prominently displayed, and users can choose from familiar payment methods like QR code, credit/debit cards (Visa, MasterCard, RuPay), enhancing trust and ease. The interface maintains consistency with bold CTAs and a clear cancellation option, catering to user needs at every step.



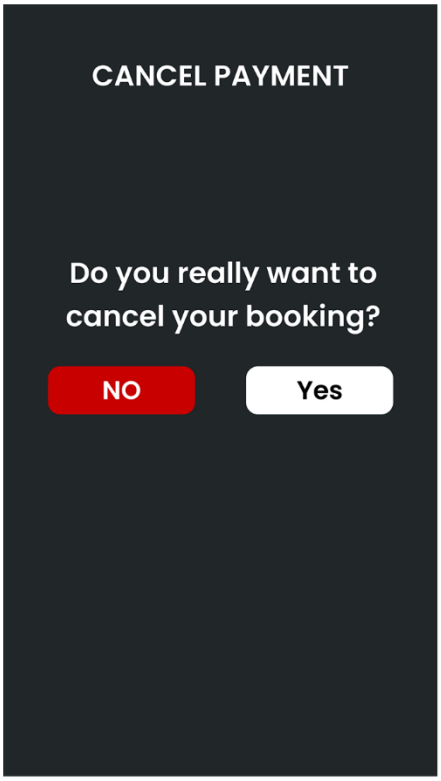
9. FOOD SELECTION



10.PAYMENT DETAILS & OPTION



11. TICKET PRINT



12. CANCEL BOOKING

Once payment is successful, the Ticket Print screen confirms the booking with a visually recognizable movie ticket layout. It displays essential information—movie name, screen, seat number, date, and time—along with a barcode for entry verification. The red-and-black color theme preserves brand consistency and reinforces the kiosk's identity, while a single "Print" button makes the final step simple and intuitive.

Lastly, the Cancel Booking screen offers a clear and direct interface for backing out. The confirmation message, paired with bold "No" and "Yes" buttons, reduces accidental cancellations and gives users the chance to reconsider. This thoughtful inclusion strengthens user control and reinforces the system's user-centered approach.

CHAPTER 6

CONCLUSION AND FUTURE SCOPE

The redesigned movie ticket vending machine project successfully reimagines the user experience by focusing on simplicity, inclusivity, and functionality. Through a carefully structured information architecture and a high-fidelity interface built with a modern color palette (#212629, #DD080B, #FFFFFF) and the Poppins font, the system ensures clarity and ease of use across 12 stages of interaction—from language selection to ticket printing. It accommodates multiple regional languages, offers diverse payment methods, and includes features for differently-abled users, reflecting deep consideration for the diverse Indian audience. Moving forward, this system holds strong potential for future growth. Enhancements such as AI-powered voice assistance, integration with loyalty programs, real-time personalization, digital sustainability practices, offline booking options, and advanced accessibility tools like screen magnification or audio feedback can further elevate the user experience. This project thus sets the foundation for a universally accessible and culturally aware ticketing solution that can evolve alongside user needs and emerging technologies.

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