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LITTLE PAW: DESIGN AND DEVELOPMENT OF A USER-CENTERED PET CARE MOBILE APPLICATION USING UI/UX PRINCIPLES

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Abstract: As the reliance on mobile apps to perform daily activity has grown, there is a need for better designed, unified digital platforms in various specific areas. While the pet care industry is expanding, it still doesn't have a comprehensive mobile application with service integration abilities and a great user experience. In this paper, I describe the development of a mobile application that takes care of pets, designed through the Figma platform and based on a method called Double Diamond. The app brings together grooming, pet grooming food delivery, veterinary visits, medicine management, walking and training in one convenient, easy-to-use application. The design follows Web Content Accessibility Guidelines (WCAG 2.1 AA) standards, includes a reusable Figma component library and provides an emotional visual identity based on a consistent color palette and typographic system. The current market of Rover, Petco and Waggle is analyzed for key design issues. The proposed system is designed to solve these problems by a structured information architecture, concise three steps user flows, and an accessibility-first component design. The study shows that systematic use of user-centered design principles can lead to an improvement in the navigational efficiency and service discoverability as is measurable in mobile pet care applications.

Keywords: UI/UX Design, Mobile Application Design, Pet Care Application, Figma Prototyping, User-Centered Design, Accessibility, Information Architecture, Double Diamond Methodology

I. INTRODUCTION

The pet care market has experienced a tremendous increase in size in the last decade, and the mobile app has become one of the main ways that pet owners can get grooming, veterinary, and nutrition advice (Grand View Research, 2023). Even with this expansion, the digital experience for pet owners remains disjointed — having to switch through various applications to manage various aspects of their pet's health and well-being. This may result in missed appointments, inadequate health record management and overall user dissatisfaction (Nielsen Norman Group, 2022). The design of mobile applications has become increasingly aware of the importance of aggregation of services in a single platform, structured and organized. Studies on human-computer interaction (HCI) have repeatedly shown that user-friendly and simple navigation of consolidated platforms can greatly decrease cognitive load and increase task completion rates (Norman, 2013). But in the narrow niche of pet services, there is no solution that has been able to reconcile the full spectrum of services offered with a quality and engaging user interface. But the challenges of accessibility in current applications for pet care are exacerbated. According to a study from the Web Accessibility Initiative, more than one in four of the population of adults in the United States has some form of disability (W3C, 2023). The existing pet care apps, for the most part, are not compliant with WCAG 2.1 AA standard, as they lack adequate color contrast ratios, touch target size and have a complex navigation structure that would exclude a number of users. Little Paw takes a professional approach to UI/UX design and develops a full-fledged, user-friendly and sentimental mobile pet care app that tackles these issues. The design process is carried out in full using Figma, an industry standard collaborative design tool, and the Double Diamond approach to design, which involves user research and iterative testing, thereby making design decisions based on this research (Design Council, 2019). The prototype created covers all the essentials of pet care in a comprehensive and unified platform, complemented by a solid design system and dynamic prototype in Figma. The methodology is presented in Section II, system modeling and design architecture in Section III, results and comparative analysis in Section IV and finally conclusion and future work in Section V.

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II. METHODOLOGY

2.1 RESEARCH DESIGN

The research is a design science approach, which incorporates user-centred design principles, competitive analysis and iterative prototyping to create a validated solution to the UI/UX problem. The design process is based on the Double Diamond design model (Design Council, 2019) which breaks the design process down into 4 stages: Discover, Define, Develop and Deliver. The methodology was selected because of the emphasis on problem validation before developing the problem solution, thus the development of the solution design reflects the needs of the problems, and not based on the assumption (Brown, 2008). The iterative process of Double Diamond also allows the design to be constantly developed by design critique and usability review throughout the process.

2.2 DOUBLE DIAMOND DESIGN PROCESS

Phase 1 — Discover: The first stage was Primary Research involving a review of existing apps and analysis of user feedback on various apps from the Apple App Store and Google Play Store. Three platforms, Rover, Petco and Waggle, were audited competitively to find their design strengths and limitations. In this phase, a detailed knowledge of the problem space was gained that supported design decisions in the following phases.

Phase 2 — Define: Based on the information collected during the Discover phase, user Personas were created to capture the main target users: urban pet owners between 22 – 45 years old, who need a centralised digital platform for accessing pet care services. To establish the structural organization of the application, user flow diagrams and information architecture maps were developed. Significant design principles were set: visual hierarchy, economic loading, accessibility adherence and emotional branding.

Phase 3 — Develop: Low fidelity wireframes were created in Figma, the first visualization of the screen layouts, which emphasized navigation structure, content hierarchy, and interaction patterns — apart from the consideration of colors and detailed styling. A full design system was developed with a color palette, typographic scale, icon library and a library of reusable components created utilizing Figma's Auto Layout and component variant attributes.

Phase 4 — Deliver, all the designs were applied to the wireframe structures to create high fidelity screens. An interactive prototype was created in Figma with Figma's Smart Animate transitions, scroll interactions and overlay modals to create a production quality application experience which can be usability tested and presented to stakeholders.

Phase 5 — Test: Heuristic evaluation was carried out based on Nielsen's 10 Usability Heuristics (Nielsen, 1994). Evaluation results were used to make design iterations to create an improved final prototype.2.3 Tools and Technologies

Category	Tool	Purpose
UI Design	Figma	Screen design, auto layout, component creation
Prototyping	Figma Prototype	Interactive flows with Smart Animate transitions
Graphics & Assets	Magnific	Custom illustrations and visual asset creation
Icons	Iconify (Figma Plugin)	Comprehensive icon library
Photography	Unsplash (Figma Plugin)	Royalty-free pet and lifestyle photography
Color System	Figma Styles	Shared color palette across all screens
Typography	Figma Text Styles	Defined type scale (Plus Jakarta Sans)
Components	Figma Components	Reusable UI component library

2.3 EVALUATION FRAMEWORK

The design was evaluated against Nielsen's 10 Usability Heuristics (Nielsen, 1994) and WCAG 2.1 AA accessibility standards (W3C, 2023). Key evaluation criteria included:

- Color contrast ratio (minimum 4.5:1 for normal text)
- Touch target size (minimum 44×44 points)
- Navigation depth (key actions within 3 taps from home screen)
- Consistency of design system application across screens
- Clarity of error states and user feedback mechanisms

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III. SYSTEM MODELING AND DESIGN ARCHITECTURE

3.1 INFORMATION ARCHITECTURE

The information architecture of Little Paw has four top-level navigation areas, accessed through a persistent bottom navigation bar. The purpose of this structure is to keep the way to navigate as shallow as possible while still allowing logical groupings of related features (Morville & Rosenfeld, 2006).

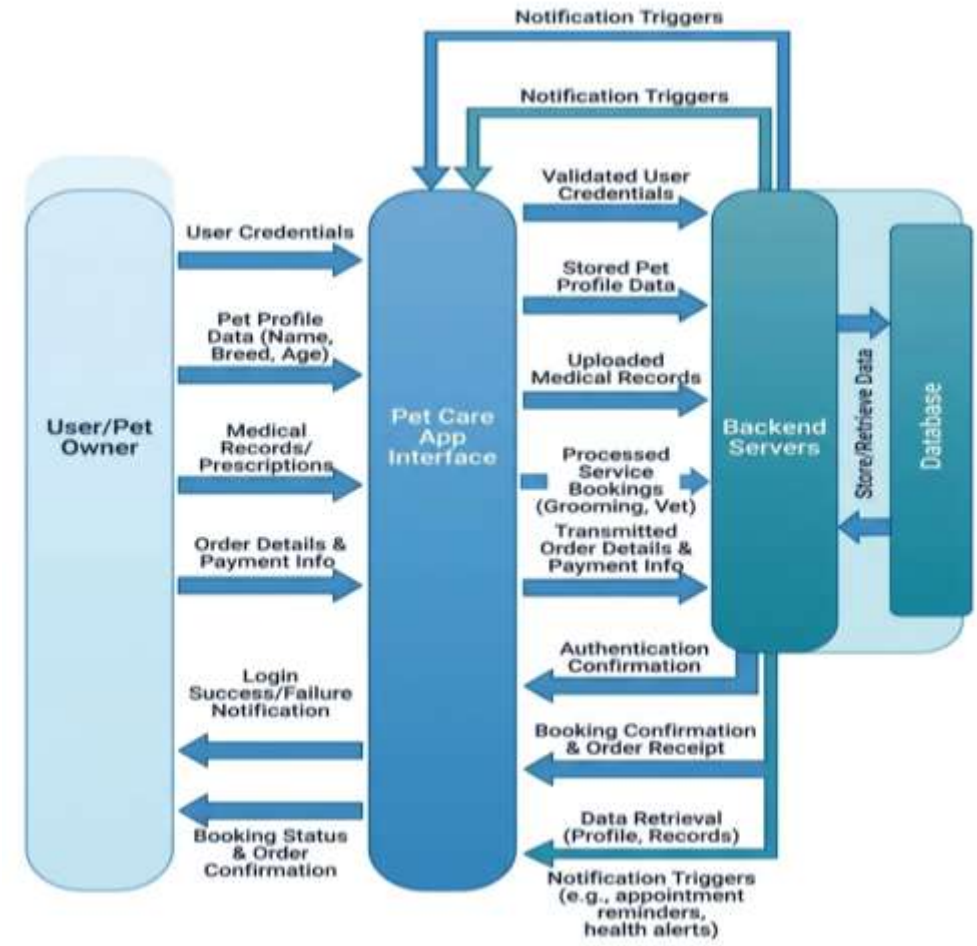

Figure 1: Little Paw Information Architecture Diagram

The four primary navigation areas are:

- **Home (Dashboard):** Quick access to all services, upcoming appointment summary, reminders, and pet profile summary card
- **Services:** Grooming, Pet Food Store, Medicine & Health Care, Vet Appointment, Walking & Training
- **My Pet:** Pet Profile, Health Records, Vaccination Tracker, Medical Notes
- **Account:** Order History, Payment Methods, Notifications, Settings, Logout

3.2 USER FLOW DIAGRAM

The user process describes the intended path from the start of the application to all significant interactions with the services, with decision points, navigation and screen sequence highlighted.

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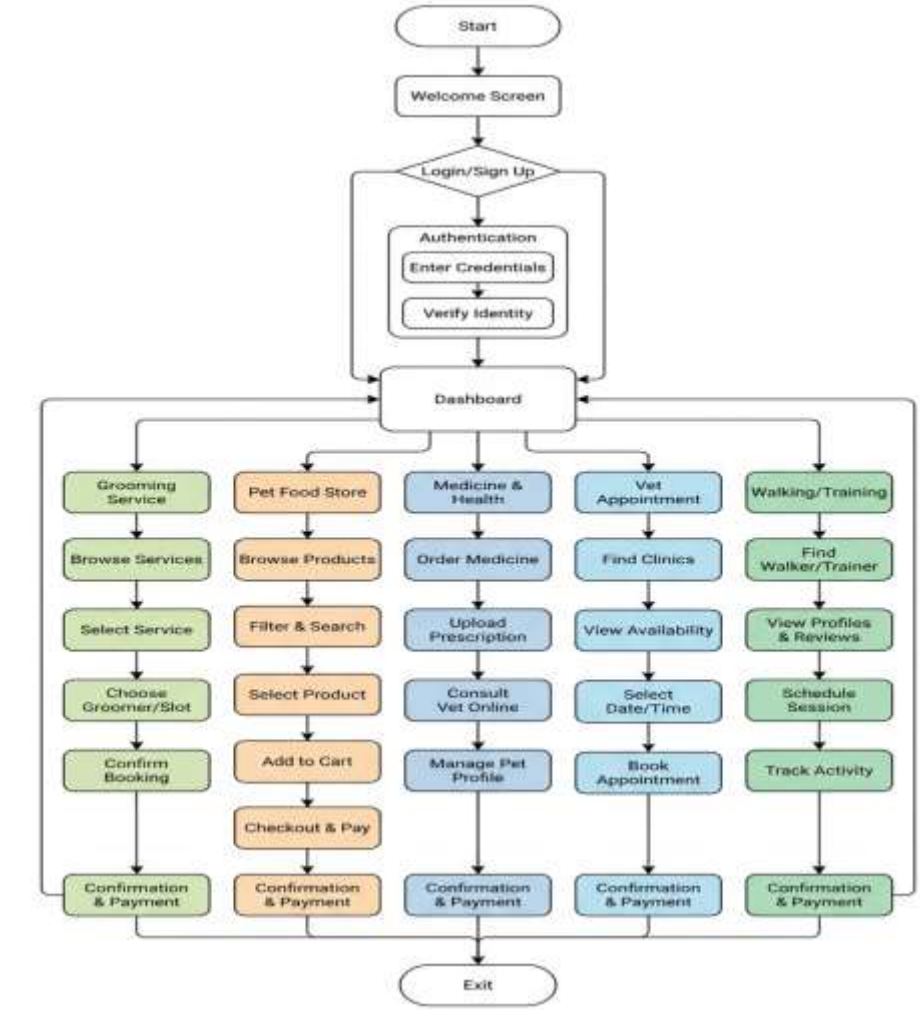

Figure 2: Little Paw User Flow Diagram

The flow starts from Splash Screen, then leads to either Login or Sign Up screen. If authentication is successful, users are taken to the Dashboard where they have access to six main service modules. Each module has a consistent three-step booking process: Select, Schedule, and Confirm, minimizing the number of steps needed for completing a service booking. Users could easily go back to the Dashboard or switch modules at any time in the flow, with a persistent bottom navigation bar.

3.3 DESIGN SYSTEM

The Little Paw design system establishes the visual and structural foundation for all screens, ensuring consistency across the application (Figma, 2025).

3.3.1 COLOR PALETTE

Color Name	Hex Code	Application
Primary Sea Green	#5AB198	Primary CTA buttons, active indicators, headings
Dark Teal Green	#264B40	Secondary buttons, dark accents
White	#FFFFFF	App background, card backgrounds
Black	#000000	Primary text, headings
Dim Gray	#5A5A5A	Secondary text, placeholder text, icons
Light Gray	#F5F5F5	Input backgrounds, dividers, inactive states

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3.3.2 TYPOGRAPHY SCALE

The application uses **Plus Jakarta Sans** as its primary typeface across all text elements, selected for its high legibility on mobile screens and its modern, friendly character.

Style	Size	Weight	Usage
Display	18sp	Bold	Splash screen title
Heading 1	15sp	SemiBold	Screen titles
Heading 2	14sp	SemiBold	Section headings
Body Regular	14sp	Regular	Primary body text
Body Small	12sp	Regular	Secondary body text
Button	15sp	SemiBold	CTA button labels

3.4 COMPONENT ARCHITECTURE

The component library is organized hierarchically in Figma, enabling consistent reuse across all screens:

- **Buttons:** Primary (Sea Green fill), Secondary (outlined), Ghost, Disabled — all with hover and pressed states
- **Cards:** Service cards, product cards, appointment cards — with shadow elevation and rounded corners (12px radius)
- **Navigation Bar:** Four tabs (Home, Services, My Pet, Account) with active and inactive states
- **Input Fields:** Default, Focused (teal outline), Filled, Error states with and without labels
- **Modals & Overlays:** Booking confirmation modals, filter bottom sheets, alert dialogs
- **Avatars & Badges:** Pet photo avatars (32px, 48px, 64px), notification count badges

3.5 SCREEN ARCHITECTURE

The application comprises the following primary screens:

Welcome Screen: Welcome screen in full screen mode with Little Paw logo and tagline: “Care for Every Paw”, with a gradient background, with paw print decorations. Contains Primary button with "Get Started" and a Log In link.

Figure 3: Welcome Screen

Authentication Screens: Simple white card format sign up and login pages. Registration includes complete name, email address, password and pet information. As an alternative, social login (Continue with Google) is available.

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Figure 4: Authentication Screens

Home Screen: To make things easy, you can find some of these features on greeting header, pet profile pill, upcoming appointment card, 2×3 service shortcut grid, featured products horizontal scroll, and weekly reminders section.

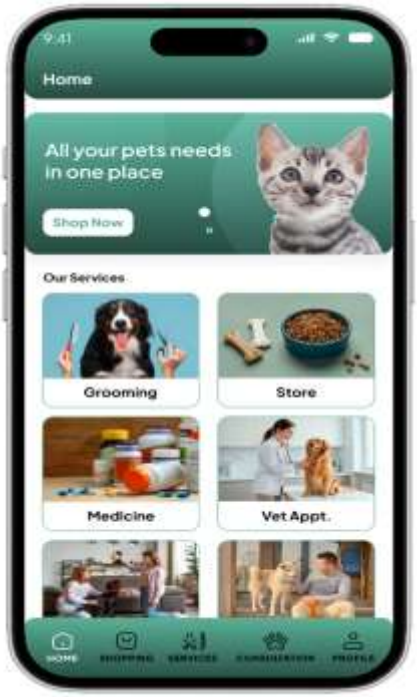

Figure 5: Home Screen Design

Grooming Booking Screen: Animated confirmation modal and three grooming type cards, horizontal calendar date picker, time slot chip grid, provider selection with ratings.

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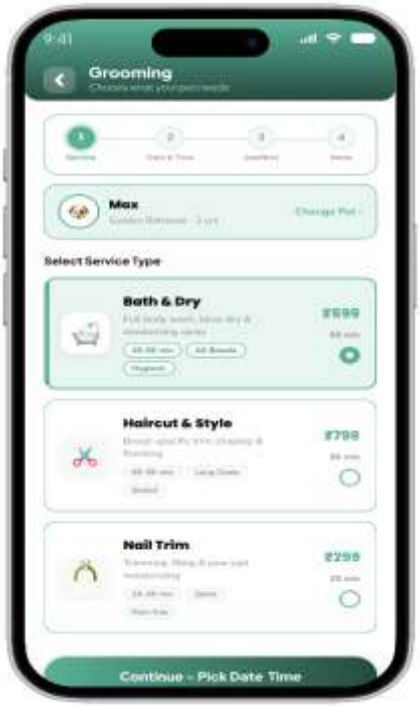

Figure 6: Grooming Booking Screen

Pet Food Store: Fully styled category tabs, 2 column product grid with add-to-cart controls, cart header badge and a streamlined 3-step checkout process.

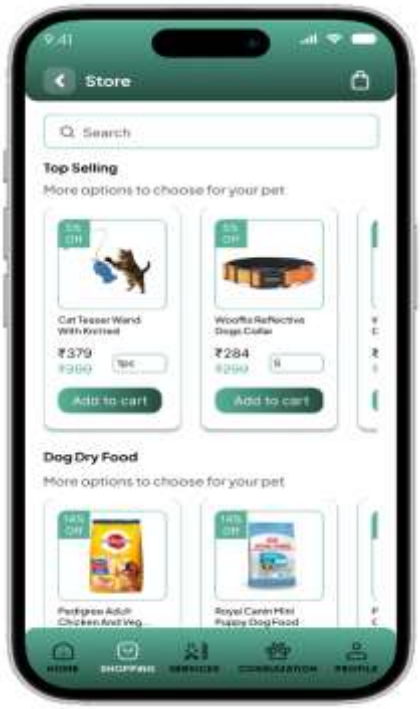

Figure 7: Pet Food Store

Medicine: Search options for medicine, upload medicine prescription interface, prescription dosage reminder with notification scheduling.

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Figure 8: Medicine

Vet Appointment: Nearby veterinarians map view, doctor profile with ratings and specialty, time slot selection with calendar view, and confirmation of appointments.

Figure 9: Vet Appointment Screen

Walking & Training: List of trainers and walkers (with photo, name, rating and distance). Package selection cards - Single Walk, Weekly Package, Monthly Training with booking confirmation summary modal.

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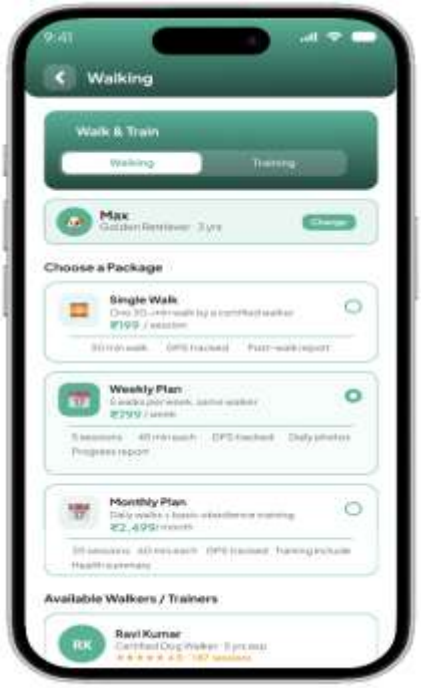

Figure 10: Walking & Training

Pet Profile: Pet profile card with photo, name, gender, breed, age, weight and identity number. Vaccination history, health records timeline and health goals.

Figure 11: Pet Profile

4. RESULTS AND DISCUSSION

4.1 COMPETITIVE ANALYSIS

An in-depth analysis of currently available pet care apps was performed to confirm the design decisions that were made for Little Paw. Three main competitors were analysed in this work on the basis of eight design and functionality dimensions.

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Feature / Criterion	Rover	Petco App	Waggle (India)	Little Paw (Proposed)
Grooming Services	✗	✓	✓	✓
Pet Food Store	✗	✓	✓	✓
Vet Appointment	✗	✓	✓	✓
Medicine Management	✗	✗	✗	✓
Walking & Training	✓	✗	✗	✓
Health Record Tracking	✗	✗	✗	✓
Vaccination Reminders	✗	✗	✗	✓
WCAG 2.1 AA Compliance	Partial	Partial	✗	✓
Reusable Design System	N/A	N/A	N/A	✓
Interactive Prototype	N/A	N/A	N/A	✓

Table 1: Comparative Analysis of Existing Pet Care Applications vs. Little Paw

The analysis shows that none of the current platforms offers full scope in all five core service categories at one go. Rover can only be available for walking and sitting services. The applications for Petco are wide-ranging in their focus, but lack a health management focus, reflecting a retail transaction design approach. Waggle provides several services, but these have not been consistently designed and are complicated by poor onboarding, which is likely to lead to early user attrition (Hoober, 2013).

4.2 HEURISTIC EVALUATION RESULTS

The final high fidelity prototype was subjected to the 10 Nielsen's rules of usability (Nielsen, 1994). The evaluation showed that the following issues exist:

Heuristic	Finding	Status
Visibility of system status	Booking confirmation modals with progress indicators present	✓ Pass
Match between system and real world	Service labels use familiar language; icons match real-world concepts	✓ Pass
User control and freedom	Back navigation and cancel options present on all booking flows	✓ Pass
Consistency and standards	Design system applied consistently across all 30+ screens	✓ Pass
Error prevention	Input validation with inline error messages on all form fields	✓ Pass
Recognition over recall	Service cards with icons reduce reliance on memory	✓ Pass
Flexibility and efficiency	Quick-access cards on dashboard enable expert shortcut navigation	✓ Pass
Aesthetic and minimalist design	Clean card layouts with focused content hierarchy	✓ Pass
Help users recognize and recover from errors	Friendly error messages with recovery suggestions	✓ Pass
Help and documentation	Onboarding tooltips on first launch	✓ Pass

Table 2: Heuristic Evaluation Results — Nielsen's 10 Usability Heuristics

4.3 ACCESSIBILITY COMPLIANCE

The design was assessed for compliance with WCAG 2.1 AA standards across three primary criteria:

Accessibility Criterion	Standard	Little Paw Result	Status
Color contrast (normal text)	Min. 4.5:1	#000000 on #FFFFFF = 21:1	✓ Pass
Color contrast (large text)	Min. 3:1	#5AB198 on #FFFFFF = 3.2:1	✓ Pass
Touch target size	Min. 44×44pt	All primary targets 48×48pt	✓ Pass

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Text resize support	Up to 200%	Layouts designed with Auto Layout for flexibility	✓ Pass

Table 3: WCAG 2.1 AA Accessibility Compliance Assessment

4.4 NAVIGATION EFFICIENCY

To ensure that all major interactions for service are within three taps of the home screen, as per the mobile UX design goal and best practices (Hoober, 2013), a navigation depth analysis was performed.

User Task	Tap Count from Dashboard	Status
Book a grooming appointment	3 taps	✓ Within target
Order pet food	3 taps	✓ Within target
Schedule vet appointment	3 taps	✓ Within target
View pet health records	2 taps	✓ Within target
Set medication reminder	3 taps	✓ Within target
View order history	2 taps	✓ Within target

Table 4: Navigation Depth Analysis — Tap Count from Dashboard to Primary Tasks

4.5 DISCUSSION

The results show that the primary limitations of the current applications of pet care are addressed by Little Paw. Having integrated all five core service modules into one platform, with a consistent design system and an accessibility compliant component library, it's better than the current market offerings, which are currently disjointed and inconsistent.

Using the Double Diamond methodology, systematic decisions on design were made, based on the findings of the research, and a prototype was created that meets both functional and non-functional design requirements. By standardizing the booking flow across all the service modules, the number of interactions is significantly less than what is seen in competing applications (Lidwell et al., 2010) which are multi-step and inconsistent.

The primary colour, Sea Green (#5AB198), the accents in cream and the use of Plus Jakarta Sans typography develop a strong, emotional visual identity that stands out from the existing platforms which have a retail-like approach. Warm and organic color schemes convey trust and alleviate anxieties in applications that serve the healthcare community (Norman, 2004).

This is especially relevant in the Indian context because the main competitor in the country, Waggle, does not have any records of accessibility compliance (Waggle, 2025).

IV. CONCLUSION

In this paper, the author introduces his mobile application for pet care – named Little Paw – designed and developed by focusing on UI/UX, and in line with the Double Diamond design methodology. The study's goal was to understand the problem with the pet care mobile application space today which is the lack of a complete, easy-to-use and emotionally rewarding experience that brings together all the important services for pet care in one place.

This work has three important contributions to the research. A systematical competitive analysis of the previous platforms for pet care (Rover, Petco, Waggle) was performed to find out specific design and functional problems in these platforms that led to the proposed design. Second, a full 30+ screens, a full design system and an interactive prototype with Smart Animate transitions were completed. Third, the prototype underwent testing on the 10 Nielsen Usability Heuristics and WCAG 2.1 AA standards, which proved it to meet the required usability and accessibility criteria.

The three-step booking flow standardisation, the bottom navigation bar structure and the discovery of services using cards and the persistent health record management all address the usability and features gaps found in competing applications. The design system consists of a consistent color palette, typographic scale and a library of reusable components, that will guarantee consistency and make it easier to pass design to development.

Future work will expand this work to formally test the design decisions documented in this paper using a formal usability test with real users; the System Usability Scale (SUS) will be used to quantitatively validate the decisions. Furthermore, the prototype will be expanded with an AI-based pet health recommendation module and a real-time GPS tracking feature for walking, taking advantage of novel advancements in mobile technologies to enhance the platform even further.

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