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Mobile App For Veterinary Client Communication With AI Integration

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1. Product Description

The Mobile App for Veterinary Client Communication with AI-Integration is a mobile-based solution designed to improve communication and service delivery between veterinary clinics and pet owners. The system provides core features such as appointment booking, medical record management, insurance plan updates, feedback forms, and real-time messaging. Integrated AI technologies, including chatbots powered by Natural Language Processing (NLP) and Machine Learning (ML), assist pet owners by answering common questions, offering reminders, and providing basic pet care advice. Both pet owners and administrators can access the platform through user-friendly mobile interfaces. For pet owners, the app ensures quick access to veterinary services and pet health records, while administrators benefit from streamlined appointment handling and reduced paperwork. This digital solution enhances veterinary service efficiency, reduces missed appointments, and improves overall client satisfaction.

2. Innovation Objectives

The main objectives of this project are to identify the communication and service needs of veterinary clinics and pet owners, and to develop a mobile application with integrated AI chatbot assistance that enhances client–veterinarian interactions. The system will implement real-time features such as appointment booking, reminders, and medical record management, while applying Artificial Intelligence techniques, including Natural Language Processing (NLP) and Machine Learning (ML), to provide automated yet personalized chatbot responses. Through these innovations, the project aims to improve veterinary clinic efficiency by reducing manual workload, strengthening customer engagement, and ultimately promoting wider adoption of digital veterinary services.

3. Problem Statement

Veterinary clinics have traditionally relied on manual communication methods such as phone calls, paper-based medical records, and limited appointment systems. These outdated practices often result in inefficiencies, including missed or delayed appointments, difficulties in retrieving medical records, and limited access to instant communication during emergencies. Pet owners may also misplace important health documents or face challenges in reaching clinics promptly. Furthermore, the absence of a systematic feedback mechanism restricts opportunities for improving veterinary services. With the growing reliance on mobile applications across industries, veterinary services face an urgent need for digital modernization. This project seeks to address these issues by developing a mobile application that enables seamless communication, real-time messaging, convenient access to medical records, and AI-powered support for both clinics and pet owners.

4. Authenticity / Novelty

The Mobile App for Veterinary Client Communication with AI Integration is distinctive because it consolidates multiple essential features into a single, user-friendly platform. Unlike existing solutions, the proposed system offers an integrated approach that combines:

- AI-powered chatbot using Natural Language Processing (NLP) and Machine Learning (ML) for automated responses and personalized pet care guidance.
- Real-time messaging to facilitate faster and more reliable communication between pet owners and veterinary clinics.
- Digital medical record management that enables convenient access, storage, and sharing of pet health data.
- Appointment scheduling with automated reminders to minimize missed visits.
- Insurance and feedback modules designed to strengthen service quality and client trust.

By unifying these features, the system goes beyond basic digitization and establishes a proactive, AI-supported communication channel. This innovation is particularly relevant in contexts such as Malaysia, where many veterinary clinics continue to depend on manual systems. The novelty lies in delivering a comprehensive, AI-assisted veterinary communication solution that not only improves operational efficiency but also enhances client satisfaction and modernizes veterinary care delivery.

Providing an interactive video platform in the form of explanations and brief role-plays to provide understanding regarding issues that often occur in prayer matters for the disabled.

5. Implementation Level

a) Analysis Phase of the Problem

The initial step in implementing the Veterinary Client Communication Mobile App involved identifying communication gaps between pet owners and veterinary clinics. Questionnaires and interviews with pet owners and veterinary staff revealed that most clinics relied on manual systems such as phone calls and paper-based records. These methods often led to missed appointments, misplaced records, and delayed responses during emergencies. Pet owners also lacked instant access to their pets' medical histories and faced difficulties contacting veterinarians outside clinic hours. Based on these findings, the essential system requirements were defined: appointment booking, medical record access, AI chatbot support, real-time messaging, and reminder notifications.

b) Development of Features and Content

In this phase, the system's core modules were developed, including registration/login, appointment booking, pet profile management, medical record storage, and insurance tracking. An AI chatbot powered by Natural Language Processing (NLP) and Machine Learning (ML) was integrated to handle common pet care inquiries and provide automated responses. The backend utilized Firebase for authentication, data storage, and real-time updates. Content such as FAQs, appointment notifications, and chatbot responses was designed to be interactive, clear, and user-friendly to support pet owners effectively.

c) Development of an Interactive Application Interface

The user interface (UI) was designed using Figma and implemented with Flutter to ensure cross-platform compatibility. Figure 1 shows the Pet Owner Dashboard included features for managing pet profiles, booking appointments, chatting with veterinarians, and accessing medical history. Figure 2 shows the Admin Dashboard enabled veterinary staff to manage bookings, update medical records, handle FAQs, and review client feedback. Real-time messaging facilitated direct communication, while the AI Chatbot interface provided 24/7 automated support. Both interfaces were developed with a focus on simplicity, responsiveness, and ease of use, ensuring accessibility even for users with minimal technical skills.

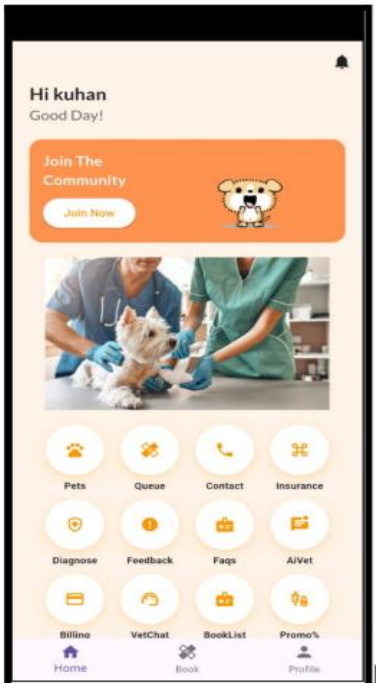

Figure 1: Pet Owner Dashboard

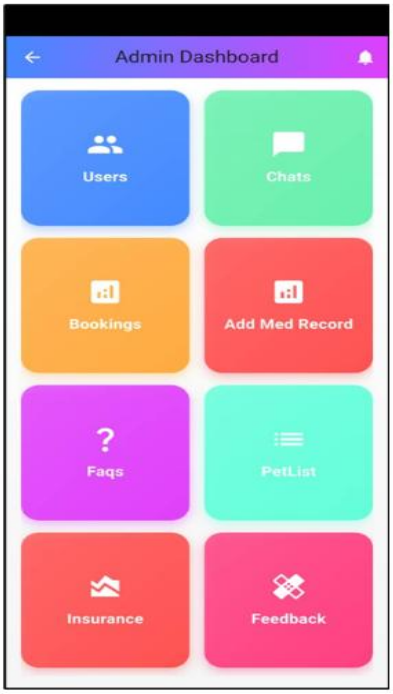

Figure 2: Admin Dashboard

d) Testing the Effectiveness of the System with Users

The system was tested through unit testing, functional testing, and user acceptance testing (UAT). Each module (e.g., appointment booking, real-time messaging, AI chatbot, medical record management) was tested for accuracy and reliability. Pet owners and veterinary staff were invited to use the prototype and provide feedback. The results showed that the app was easy to use, reliable, and effective in reducing communication delays and improving clinic efficiency. Pet owners especially appreciated the reminder notifications and access to digital medical records. Some feedback suggested enhancing chatbot accuracy and expanding features in future updates.

6. Uses and Applications

The Mobile App for Veterinary Client Communication with AI Integration can be applied across multiple contexts within veterinary care and beyond. For pet owners, it offers a convenient platform to manage appointments, access medical records, and receive real-time support from clinics, minimizing the need for phone calls or physical visits. For veterinary clinics, it provides a modern management tool that streamlines operations, reduces paperwork, and strengthens client engagement. In academic settings such as universities, colleges, and schools, the system can serve as a teaching resource to introduce students to AI-driven

healthcare applications, mobile app development, and veterinary management systems. NGOs, animal welfare groups, and community organizations may also adopt the app to support pet adoption initiatives, vaccination campaigns, and awareness programs promoting responsible pet ownership. The versatility of the system enables adaptation across different veterinary environments, ranging from urban pet clinics to rural animal care centers. By digitizing core processes, the app supports Malaysia's digital transformation agenda in healthcare and highlights the broader potential of AI integration in everyday life.

7. Innovation Product/Project Impact

The impact of the system can be observed across multiple dimensions. For pet owners, the app enhances convenience by enabling easy appointment booking, access to pet health records, and instant communication with clinics, while also strengthening trust and satisfaction through timely reminders and AI-assisted support. For veterinary clinics, it reduces administrative workload, minimizes missed appointments, and improves client management, allowing staff to focus more on delivering quality care. At the community level, the system promotes digital literacy in animal healthcare and raises awareness of preventive care, vaccinations, and pet insurance. At the national level, it aligns with Malaysia's digital innovation and smart healthcare initiatives, modernizing veterinary services and contributing to animal welfare policies. Globally, the app demonstrates a scalable solution that can be adapted to other countries facing similar veterinary communication challenges. Beyond efficiency, the system supports better animal health management, reduces stress for pet owners, and fosters strong clinic–client relationships, contributing to sustainable healthcare, digital transformation, and improved quality of life for pets and their owners.

8. Achievements

The project was successfully developed, tested, and showcased at the Final Year Project Showcase at Universiti Selangor (UNISEL)**,** receiving positive feedback for its innovation and practicality.