

**Department of Computing**

**Development Project**

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**Literature review**

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## Progressing Veterinary Practices: The Future of Pet Health via Mobile Applications and Biometric Identification

## Introduction:

Over the last decade, the veterinary industry has undergone considerable technological advancements, most notably the introduction of mobile applications that facilitate communication between clinicians and pet owners. While these apps offer a wide range of services such as appointment scheduling and medical reminders, one emerging innovation is the use of biometric identification systems. Biometric identification based on a pet's nose print is particularly appealing as a non-invasive, secure alternative to microchipping, with the potential to improve pet traceability and healthcare management.

**Effectiveness of veterinary apps**

Apps can help veterinarians reduce administrative procedures, lowering effort and mistakes while improving patient care. Meanwhile, for pet owners, these applications provide real-time updates, access to medical history, and the opportunity to manage their pet's health proactively. According to Smith et al. (2020), the creation of pet health applications has increased dramatically over the last decade as more pet owners use smartphones and mobile devices. These applications contain appointment scheduling, prescription reminders, symptom checks, and virtual consultations. Johnson and Lee (2021) discovered that the use of mobile applications in veterinary treatment has made it easier for pet owners to control their dogs' health.

**Benefits of nose biometric id**

Nose prints, like fingerprints, provide a unique identification marker that cannot be replicated, making them a dependable way to identify pets without the hazards associated with microchips or collars. Unlike microchips, which need a needle and a little surgical operation, there are some breeds for whom microchips do not work well, and some pet owners are uncomfortable with them. Capturing a nose print is absolutely non-invasive and more efficient. Beyond identification, biometric data might be integrated with applications to create a unified experience for recording medical histories, immunisation records, and even social connections

**Impact of communication**

One of the most notable benefits of veterinary applications is their ability to improve communication between clinicians and pet owners. Effective communication is essential for improving pet health outcomes. The opportunity to rapidly contact a veterinarian via encrypted messaging or virtual consultations, as noted by Lee and Brown (2020), not only develops confidence but also lowers treatment delays, especially in emergency cases.

The study also found that pet owners felt more empowered to manage their pets' health since they could track immunisations, checkups, and medication schedules using their cellphones.

**Potential challenges**

Despite the advantages, some problems remain in the creation and implementation of veterinary mobile apps. One major concern is data privacy and security. As with any healthcare-related application, sensitive data, such as pet medical information, must be kept secure. Clark (2021) found that many veterinarian applications lack effective security safeguards, leaving them open to data breaches.

Furthermore, some study is needed to determine the long-term impact of veterinarian applications on pet health outcomes. While studies have shown short-term advantages in terms of convenience and communication, additional long-term research is needed to determine whether using these applications improves pet health outcomes, particularly for chronic diseases. Not so many owners are used to the technologies, and they cannot adapt.

Although biometric technologies have the potential to provide a non-invasive and secure alternative to microchips, significant obstacles remain. A pet's nose print might alter owing to age, injury, or disease. Research into adaptive biometric systems or periodic re-scanning might help to address this issue, guaranteeing that the system stays successful over time.

## Conclusion:

To summarise, technology innovations, notably the creation of veterinary applications and the use of biometric identification, provide major benefits in pet healthcare administration. While these advancements provide various advantages, such as non-invasive identification and improved communication between pet owners and vets, potential issues such as data security and system flexibility must be addressed. Further study is needed to determine the long-term influence of these technologies on pet health and well-being.

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