

# Cloud-Based Veterinary Clinic Integrated Management System: A Web-based Application Integration with AI Chatbots and Using Security Airtags Tracking Device

Daisy-Ann Ylarde Santos

<sup>1</sup>Student, AMA University School of Graduate Studies, Project 8, Quezon City Philippines

## Abstract

Mobile Technologies considerably make a significant impact on our lives, with an advancement in technology, a rule-predicated expert system allows the end-user to enable new types of dog and cat healthcare systems. The pet mobile application can be used to help with any complaint attacks on the dog and cat. In emergency times we can call the dog and cat specialist by making an appointment online using this application. This paper is exactly what you need. This largely advanced device uses multiple detectors, AI algorithms, and constantly growing data to give a clear picture of your dog and cat's health and well-being. In this disquisition, issues are handled through the dog and cat health on the base of mobile phones. This paper discusses the characteristics and technologies of the bottommost dog and cat care operation and proposes results that satisfy the current conditions of pet owners. The outgrowth is an IoT-predicated mobile application that satisfies the user's conditions by assaying these data. The Architectural frame and Integration architecture are presented to describe the functionalities of the operation. The result showed its ease of use, effectiveness and delicacy of the operation with AI-powered chatbots have enhanced user exploits, customer satisfaction, and effectiveness in industriousness like customer support and service, they also raise implicit ethical and insulation enterprises. This disquisition paper aims to explore the current state of AI-powered chatbot technology, fastening on the bottommost advancements and leading inventions.

**Keywords:** Cloud-based, Mobile Application, AI Chatbots, Security Airtags

## 1. Introduction

Artificial intelligence is a newer concept in veterinary medicine than human medicine, but its existing benefits illustrate the significant potential it may also have in this field. Successful integration of different artificial intelligence strategies can offer practical solutions to issues, such as time pressure, in practice. Artificial intelligence and deep learning methods to automatize the analysis process would be very beneficial. Artificial intelligence is emerging in the field of veterinary medical imaging [1]. Artificial intelligence and machine learning have immense potential when it comes to dog health monitoring. These technologies can analyze vast amounts of data, identify patterns, and provide personalized recommendations for optimal dog health. Technology is revolutionizing dog health monitoring in unprecedented ways. With wearable tech, mobile application, and innovative solutions,

pet owners now have access to a wealth of information and tools to ensure the well-being of their beloved dogs [2]. Chatbot is a timely topic applied in various fields, including medicine and health care, for human-like knowledge transfer and communication. Machine learning, a subset of artificial intelligence, has been proven particularly applicable in health care, with the ability for complex dialog management and conversational flexibility [3].

## 2. Proposed System Development

This proposed system development plan outlines the steps involved in creating a mobile app for dog health monitoring, from conceptualization and planning to post-launch maintenance and continuous improvement. Each phase is crucial for ensuring the successful development, deployment, and long-term success of the app.

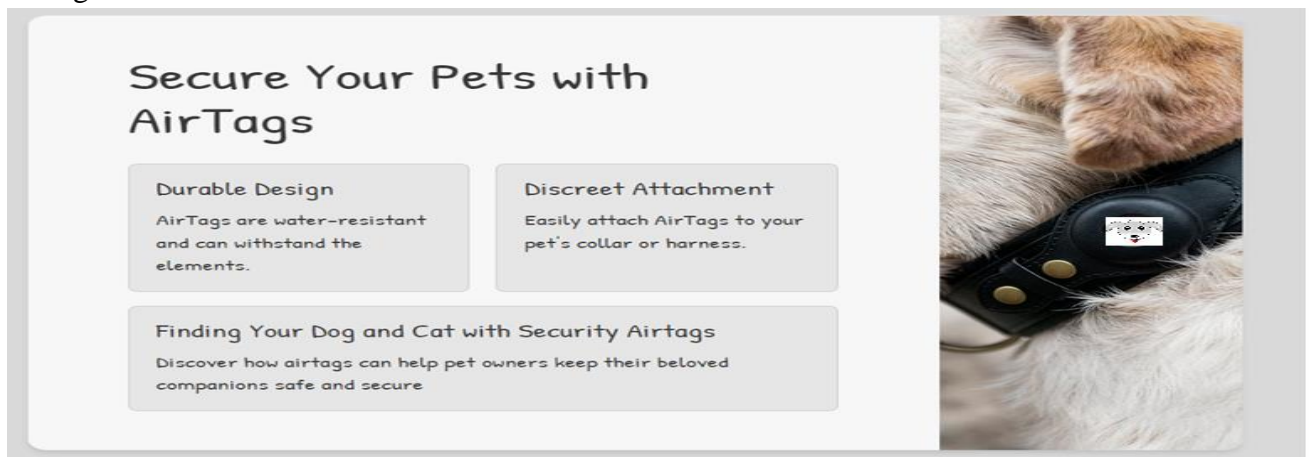


**Fig. 1. Sensor Precision and Calibration**

From the Fig. 1, High-quality sensors with accurate measurements contribute to reliable data collection. Regular calibration ensures that the system provides consistent and precise readings.

## 3. Security Airtags

Absolutely, Security AirTags can indeed be a useful tool for helping locate lost pets. However, it's essential to consider the security implications, especially regarding the privacy and safety of both the pet and the owner. Here are some security considerations to keep in mind when using AirTags for pet tracking.

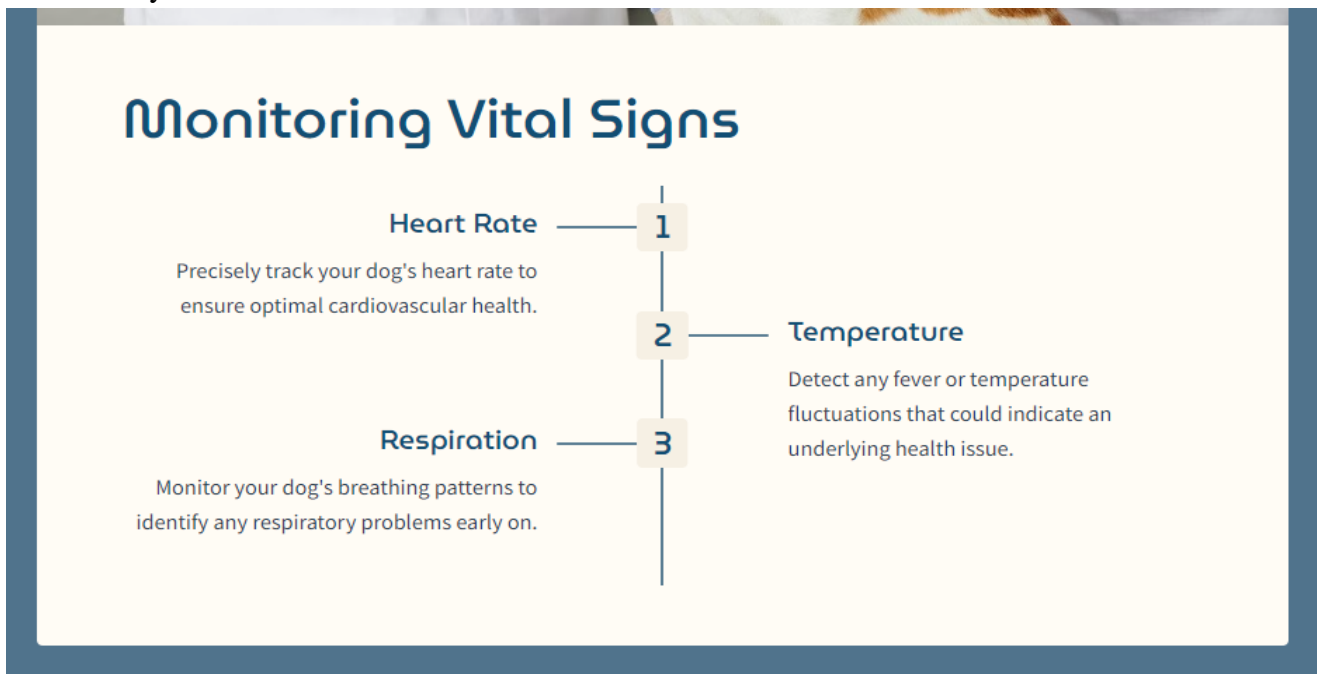


**Fig. 2. Great for finding dog and cat**

From Fig. 2, by taking these security precautions, pet owners can harness the benefits of AirTags for locating lost pets while minimizing potential risks to their privacy and security. It's essential to use technology responsibly and ethically to ensure the safety and well-being of both pets and their owners.

#### 4. Methodology

The research methodology and procedures used in the study are systematically presented and discussed, which includes details on different processes that would be the basis to developing the design project. It describes the data collection techniques and data analysis tools used by the researcher to transcribe data and information that make the study as consistent as possible to provide a well-defined and hierarchical representation of the study information that contains explanations of the several evaluation and consistency tests that the project would undergo to ensure design stability and reliability.



**Fig. 3. Vital Function Monitoring**

From Fig. 3, a data collection and algorithm system has been developed to detect abnormalities in dogs' vital functions. The system collects data related to parameters such as temperature, heart rate, pulse rate, and respiratory rate.

#### 5. Result and Discussion

The development and implementation of the dog health monitoring mobile app system have yielded significant outcomes in improving pet care and enhancing the interaction between pet owners and veterinarians. This section outlines the key results observed and discusses their implications for pet health management.

**Table 1: AI Chatbot for Pet Owners and Veterinary Practices**

Convenience	Early Intervention	Cost Savings	Data-Driven Decisions
Pet owners can access personalized health guidance anytime, anywhere	Timely detection of issues can lead to better treatment outcomes	Reduced need for in-person Vet visits lower healthcare expenses	Vets can leverage chatbot insights to make more informed treatment plans.

Table 1, allows pet owners to schedule appointments directly through the app. They can select their preferred date and time, as well as specify the reason for the visit, and offer telemedicine consultations where pet owners can virtually connect with veterinarians for non-emergency consultations, follow-ups, or general advice.



**Fig. 4. Algorithm Performance**

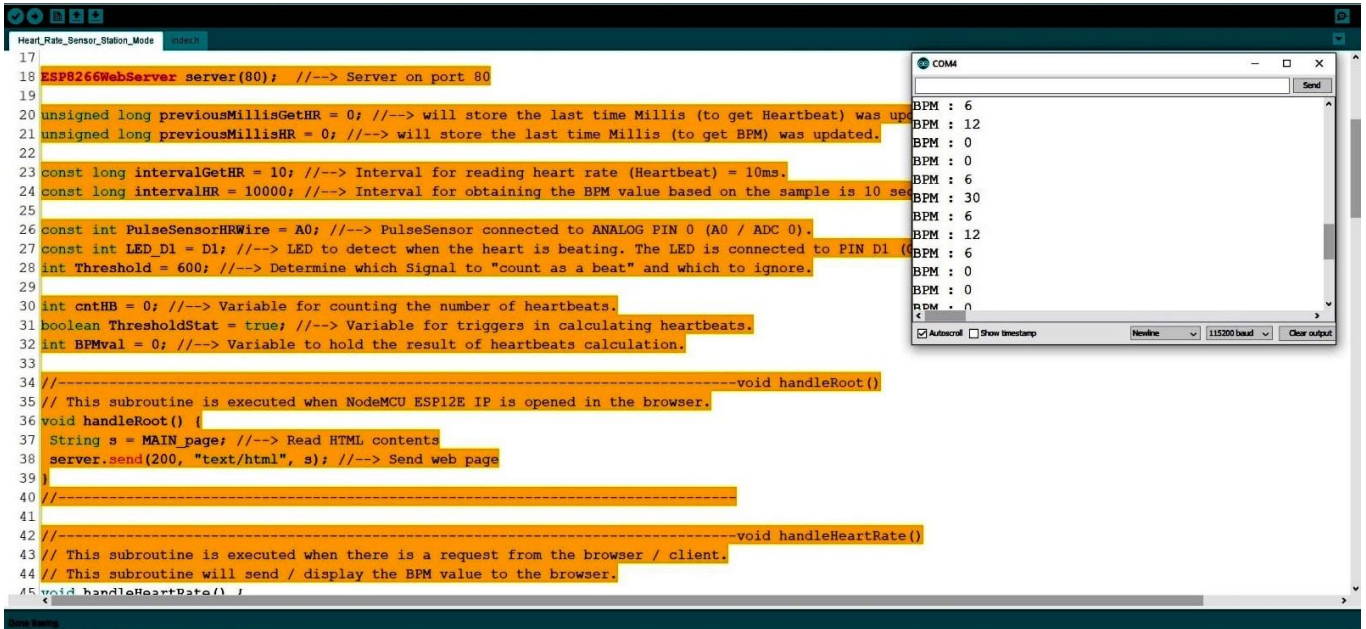
From the Fig. 4, the algorithms used to process the collected data play a crucial role. Well-designed algorithms can detect subtle changes in vital signs and emotional states.



**Fig. 5 Telemedicine Consultations**

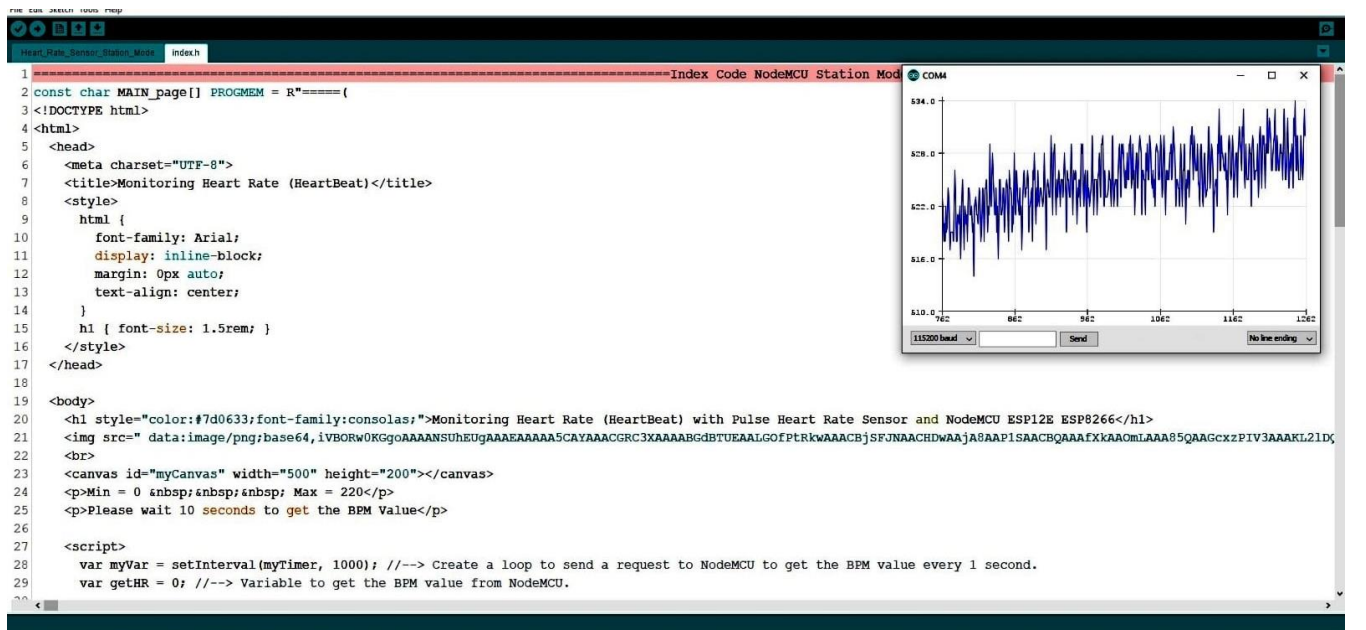


The Fig. 5, integrates with wearable devices these pet activity trackers to monitor activity levels, sleep patterns, and other health metrics. This data can then be shared with veterinarians for better insights into the pet's overall health. With AI Chatbot allows pet owners to communicate directly with their veterinarian or veterinary staff through secure messaging within the app for quick questions or concerns.



**Fig. 6. Code**

From Fig. 6, creating a code implementation for a dog health monitoring system would be quite extensive and depend on various factors such as the programming language, frameworks, databases, and technologies being used. However, figure 6 is a simplified of how might structure the result component of such a system using Arduino.



**Fig. 7. Testing**

From Fig. 7. Tested the system to ensure that it accurately measures and displays the dog's vital signs. This includes the dog's heart rate, temperature, and any other relevant information. Tested the system thoroughly to ensure accuracy and reliability in measuring and displaying vital signs.

## 6. Conclusion

This paper introduces a comprehensive frame that nonstop monitoring allows early discovery of dog and cat health issues; timely intervention can help serious conditions. Pet possessors can make informed opinions grounded on real-time data, ensuring better overall health for their dog and cat. This technology facilitates collaboration between pet possessors and veterinarians leading to further effective care. This invention must give accurate reading and dependable perceptivity to be effective. With the integration of AI Chatbots holds immense pledge these innovative tools can significantly enhance also well- the being of dog and cat health monitoring. AI chatbots help pet possessors by furnishing instant answers to common questions related to general dog and cat care.

The development of a dog health monitoring system through a mobile app represents a significant step forward in enhancing the well-being of our beloved dog and cat companions. Throughout this process, we have envisioned and executed a comprehensive solution aimed at improving pet care, fostering communication between pet owners and veterinarians, and promoting proactive health management practices.

Through the implementation of features such as appointment scheduling, telemedicine consultations, medical record management, and integration with wearable devices, the system empowers pet owners with the tools and information they need to make informed decisions about their pet's health. It facilitates easier access to veterinary care, enables personalized health monitoring, and encourages compliance with preventive care measures and treatment regimens.

Moreover, the system emphasizes continuous improvement and innovation, with mechanisms in place for gathering user feedback, analyzing data insights, and incorporating advancements in technology and veterinary medicine. By staying responsive to the evolving needs of pet owners and the broader pet care community, the system remains adaptable and relevant in an ever-changing landscape.

Ultimately, the dog health monitoring system serves as a testament to the transformative potential of technology in improving the lives of our furry companions. By leveraging the power of mobile technology, data analytics, and connectivity, we can revolutionize the way we care for dogs, ensuring they live longer, healthier, and happier lives by our side. With a commitment to innovation, collaboration, and compassion, we pave the way for a brighter future for pets and pet owners alike.

## 7. References

1. Mark BraedenMark BraedenMark is a Boston University graduate and former electrical engineer. In 2017, Braeden, M., Mark BraedenMark is a Boston University graduate and former electrical engineer. In 2017, Braeden, W. by M., Author Mark Braeden Mark is a Boston University graduate and former electrical engineer. In 2017, Mark Braeden Mark is a Boston University graduate and former electrical engineer. In 2017, Mark is a Boston University graduate and former electrical engineer. In 2017, & posts, V. all. (2023, September 12). *How technology is Revolutionizing Dog Health Monitoring*. Technobark. <https://technobark.com/dog-health-monitoring-technology/>

2. Owens, A., Vinkemeier, D., & Elsheikha, H. (2023). A review of applications of Artificial Intelligence in Veterinary Medicine. *Companion Animal*, 28(6), 78–85. <https://doi.org/10.12968/coan.2022.0028a>
3. Xu, L., Sanders, L., Li, K., & Chow, J. C. (2021). *Chatbot for Health Care and Oncology Applications Using Artificial Intelligence and Machine Learning: Systematic Review (Preprint)*. <https://doi.org/10.2196/preprints.27850>