

SensePet: Comprehensive pet health monitoring system utilizing longitudinal physiological data and a multidimensional model for predicting wellness status

Ali Bahrami, Bionous LLC

Introduction

The advent of smart technology is revolutionizing pet care. Modern tools enable real-time monitoring of our pets' vital signs, offering us detailed insights into their health and wellbeing. At the forefront of this development is SensePet, a comprehensive pet health monitoring system.

Pet Health Awareness (PHware) Model

PHware Model gathers multimodal, longitudinal physiological data points from pets to predict their health status. These inputs include heart rate, blood oxygen levels, resting respiration rate, heart rate variability (HRV), and photoplethysmogram (PPG) signals. With this data, SensePet establishes an individualized baseline for each pet and observes any deviations to ensure optimal pet health.

Enhanced Pet Health Monitoring System (PHware) Ecosystem

The PHware ecosystem comprises five subsystems that collaboratively create a continuous data-to-actionable intelligence pipeline. These subsystems include Analytics Flow, SensePet, Sensor Cloud AI, Cloud Analytics, and the Telehealth Dashboard. Together, they provide a powerful tool for pet health monitoring and care.

Use Cases

1. **Continuous Health Monitoring:** With SensePet, pet owners can regularly monitor their pets' vital signs, even when they're away. By noting abnormalities in their pet's data, owners can take immediate action, consult their vet, or adjust their pet's care regime, resulting in more efficient and effective pet care.
2. **Early Disease Detection:** Deviations from established baseline vital statistics can signal health issues. For instance, a consistent rise in heart rate and respiration rate may suggest heart disease, while a drop in blood oxygen levels could indicate respiratory issues. With SensePet, early detection is possible, often resulting in better treatment outcomes.
3. **Stress Management:** Changes in Heart Rate Variability (HRV) can reflect a pet's stress level. Owners can use this information to make changes to their pets' environment, diet, or routine to manage their stress levels effectively.

4. **Veterinarian Consultation:** The Telehealth Dashboard allows vets to access pet health data in real time, facilitating prompt and accurate consultation. This feature is especially useful for managing chronic conditions and monitoring post-surgical recovery.

Evaluation of PHware SensePet Predicting Wellness Status

PHware uses an AI-based algorithm to generate a 'wellness score,' providing a snapshot of a pet's health status. Longitudinal measurements offer an individualized health baseline, deviations from which can signal health issues.

Conclusion

As technology becomes more advanced and accessible, smart gadgets for pets are increasingly common. However, these devices need companion software that can translate complex physiological input data into easily understood, actionable measures. That's where PHware comes in, offering an AI-based platform that pet owners, veterinarians, and researchers can use to monitor pet health.

SensePet is paving the way for a revolution in pet healthcare. By leveraging advanced technology, it turns complex physiological data into easy-to-understand, actionable information, promoting proactive care and early disease detection.

Our software's accuracy largely depends on the accuracy of the raw input data. Hence, we've developed a proprietary, three-dimensional tool to gather PPG signals from animals in a non-invasive way.

With the advent of smart pet gadgets like SensePet, we believe the standard of pet care is on the verge of a disruptive change. With SensePet, pets can enjoy a higher standard of health and wellness, and their owners can enjoy the peace of mind that comes from knowing they're doing everything they can for their furry friends.