

# ENHANCING PET HEALTH TRACKERS WITH FERROELECTRIC RAM

*MARKET DYNAMICS, TECHNOLOGICAL INTEGRATION, AND FUTURE OUTLOOK*



## ***Executive Summary***

The global market for pet wearables – particularly smart collars that combine GPS tracking with health monitoring – is undergoing rapid growth. Valued at USD 3.27 billion in 2023, the market is projected to reach USD 11.25 billion by 2032, expanding at a CAGR of 14.77% over the next decade.

This expansion is fueled by rising pet ownership, the growing trend of pet humanization, and the proliferation of connected health technologies. However, the reliability, responsiveness, and power efficiency of these devices depend heavily on underlying memory technologies.

Ferroelectric RAM (FeRAM), with its unique combination of speed, endurance, low power consumption, and non-volatility, represents a strategic solution for next-generation pet health trackers. This paper explores market dynamics, core applications, and the integration of FeRAM into key use scenarios.

# 1. INTRODUCTION

Pet health monitoring has evolved from simple pedometers into sophisticated biosensor-enabled devices that log vital signs, behavior, and even emotional state. These smart collars – integrated with GPS, activity monitors, and biometric sensors – sync with smartphone apps to deliver real-time health insights.

The efficient operation of these systems depends on advanced embedded memory capable of:

- Real-time data logging
- Handling high-frequency sensor inputs
- Consuming minimal power
- Withstanding repeated read/write cycles

FeRAM is particularly well-suited for these demands.



# 2. MARKET OVERVIEW

## Market Size and Growth

The global pet wearable market was valued at USD 3.27 billion in 2023. With an expected CAGR of 14.77%, it is projected to grow to USD 11.25 billion by 2032. (Source: SNS Insider Report, 2024)

# 3. KEY FEATURES OF SMART PET HEALTH TRACKERS

Function	Description
GPS Tracking	Real-time location monitoring via satellites.
Activity Monitoring	Tracks daily movement, calories burned, and sleep cycles.
Biometric Health	Measures heart rate, respiration, temperature.
Data Integration	Syncs with smartphone apps, stores logs in the cloud or locally.

As pet humanization is rising across the globe, pet owners increasingly see the value of technology to care for their furry friends. Modern trackers act not only as safety tools but as full-spectrum health monitors – ideal for proactive veterinary care.



## 4. FeRAM AS PERFORMANCE ENABLER

### 4.1 What is FeRAM?

Ferroelectric RAM is a non-volatile memory that stores data by using a ferroelectric layer instead of a traditional dielectric. This allows **instant read/write operations**, **very low energy consumption**, and **exceptional durability** (up to  $10^{13}$  cycles).

### 4.2 Key Technical Advantages

Function	Description
High write endurance	Up to $10^{13}$ cycles without degradation
Instant write (no latency)	Enables real-time logging of biometric data
Ultra-low power	Ideal for small batteries, extends life by weeks
Non-volatile storage	Data preserved in power-loss or crash events

By addressing multiple bottlenecks – particularly energy drain and data reliability – FeRAM strengthens the commercial value proposition of wearables.

## 5. FeRAM AS A DIFFERENTIATOR

### Advantages of FeRAM

In an increasingly crowded market, memory performance can be a **competitive differentiator**. Brands integrating FeRAM can position their products around:

- Battery life supremacy
- Always-on health tracking
- Military-grade reliability
- Veterinarian-preferred diagnostics



## 6. FUTURE OUTLOOK

With the fusion of AI, biosensors, and mobile connectivity, pet health trackers are moving toward becoming predictive health systems rather than reactive tools. FeRAM supports this shift by enabling:

- On-device ML analytics (with local memory cache)
- Secure storage for health history
- Real-time streaming of telemetry data to vets

As devices evolve, FeRAM will be key to enabling robust, continuous, and low-power data collection.

RAMXEED Limited is uniquely positioned to champion this integration, aligning our expertise in memory technologies with the emerging demands of the global pet care sector.



## ABOUT US

MEMPHIS Electronic has been in the memory business for over 30 years. Due to our focus on memory only, we developed into a Memory Competence Center with an unmatched line card of over 18 different memory manufacturers (Samsung, Nanya, SK Hynix, Winbond, Huawei, SkyHigh, Ramxeed, Intelligent Memory, Apacer, Longsys, ESMT, Biwin and many more). We combine this with comprehensive supply chain solutions.

From legacy to latest components and modules, from standard to specialty memories – if it's a memory, we can help. Memory experts in 17 locations worldwide provide regional support and manufacturer recommendations, to ensure customers find the most suitable technology solution for every project.

## MEMPHIS LOCATIONS



## CONTACT US

For further information, data sheets or samples, please reach out.  
We are only an email away: [sales@memphis.de](mailto:sales@memphis.de)

**MEMPHIS Electronic GmbH**

[www.memphis.de](http://www.memphis.de)

[info@memphis.de](mailto:info@memphis.de)

