Technology Overview Report

Touchless Sensing

(Vision, Motion, Sound)
Seeing, Sensing, Hearing Health

The Future of Healthcare is Unobtrusive

Your health insights, gathered seamlessly from the environment around you, without any wearables.

Sep 2025 version

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Research methodology

for the technology overview report

Over 3500+ patent families analyzed in the domain of Touchless Sensing

Evaluated patent portfolio strength based on multiple quantitative & qualitative parameters

Analyzed top market players for their product offerings and activities such as collaborations, acquisition strategies, etc.

Study period: Conducted globally over all the years

150+ hours invested

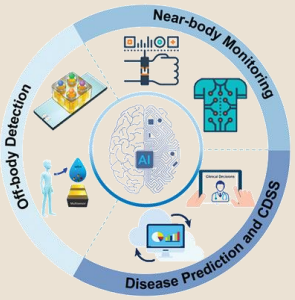
This report highlights leading players such as:

Panasonic, NE DEVICE SW, binah.ai, neteera, Medtronic, GE HealthCare, Baxter, PHILIPS, Resmed, XANDAR KARDIAN

Introduction

Sensing Health Beyond Touch:

Old-school health monitoring often means wires, wearables, or hospital visits. But **what if your heart rate, breathing, or even emotional state could be tracked without touching you at all**? Thanks to **touchless sensing technologies using vision, motion, or sound, healthcare is going contact-free**



From smart cameras that detect falls to radar that tracks vital signs and microphones that analyze breathing patterns, this innovation is redefining how we care, diagnose, and respond remotely, safely, and in real-time.

Transitioning from contact-based methods, including wires, wearables, and clinical settings, to touchless

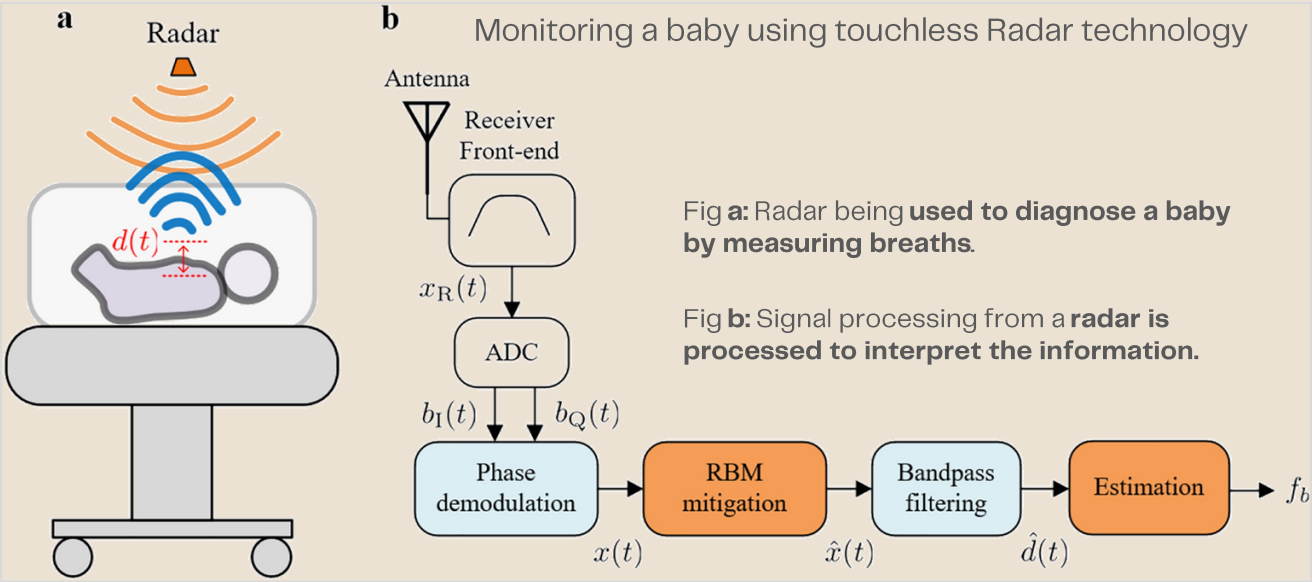


Fig **a:** Radar being **used to diagnose a baby by measuring breaths**.

Fig **b:** Signal processing from a **radar is processed to interpret the information.**

Health Monitoring Without a Single Touch!

Wires and wearables are becoming a thing of the past. Whether it's **a camera capturing micro-movements or a microphone detecting changes in breath or voice**, the future of healthcare is becoming non-contact, smart, and seamless.

Touchless sensing is driven by –

Vision	Motion	Sound
Uses optical systems like cameras, depth sensors, and IR to detect visual cues from the body	Uses radar, ultrasonic, or RF signals to sense body movements without contact.	Analyzes ambient sound, snores, coughs, and voice, to infer health-related activity.

Why Touchless Health Monitoring?

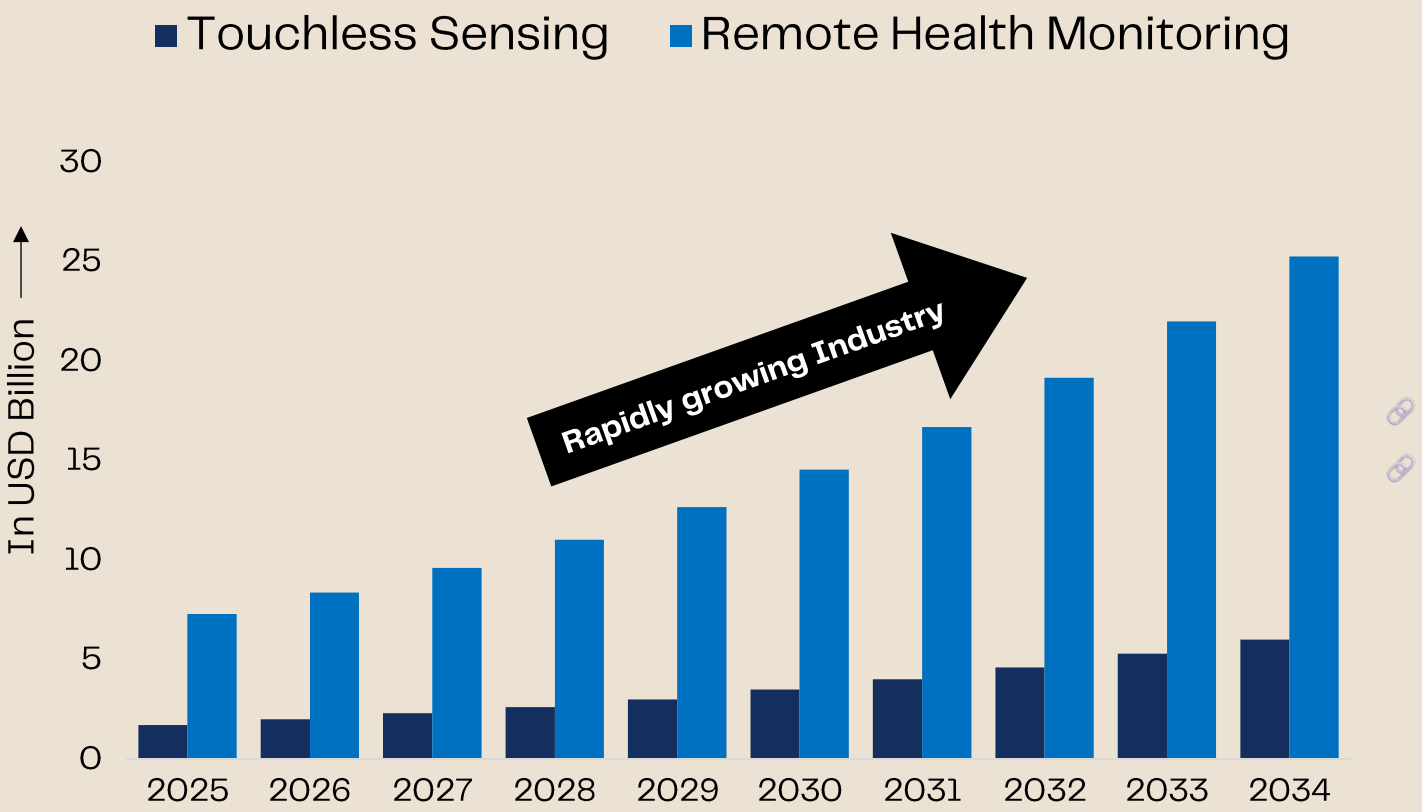
Truly Non-Invasive– No skin contact, no discomfort. Just cameras, microphones, or sensors quietly working in the background.

Monitor from Home (or Anywhere)– Smartphones, TVs, and ambient sensors can track vital signs from your living room without a clinic.

Early Warnings Through Subtle Signs– Vision and sound-based tech can pick up micro-signals like minor posture changes, breathing irregularities, or tone shifts before symptoms escalate.

Eliminates Infection Risk– By removing the need for physical contact, crucial in sterile environments like ICUs and during outbreaks.

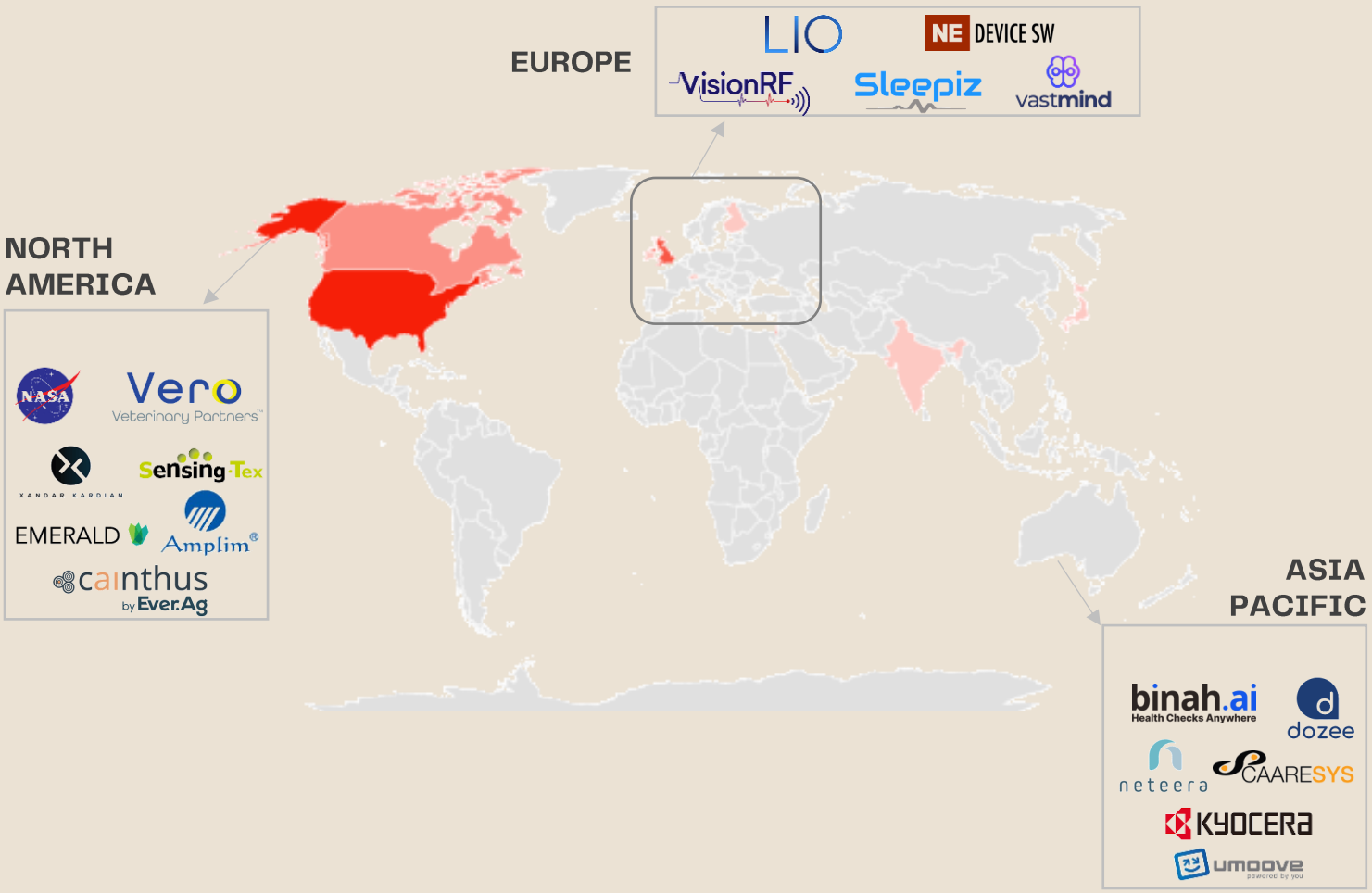
Market Landscape



The global touchless sensing market is projected to reach USD 1.7 billion by 2025, with a CAGR exceeding 15% through 2034, while the remote health monitoring sector is expected to expand from USD 7.29 billion in 2025 to approximately USD 25.26 billion by 2034 at a CAGR of 14.8%. Given these strong growth trajectories and converging trends, the touchless health monitoring segment is well-positioned for substantial expansion, a trajectory further accelerated by the COVID-19 pandemic, which drove widespread adoption of contactless technologies, particularly in healthcare and automotive applications.

Touchless Sensing by Region

The Contactless health monitoring technology landscape features multinational players actively engaged in market developments and driving product innovation.



The USA and Canada leads the touchless sensing health monitoring domain, while Asia and Europe also represent strong markets for innovation in touchless sensing products.

A diversity of product offerings (1/2)

Innovative touchless health monitoring systems are being developed worldwide, leveraging **vision, motion, and sound technologies to track human vital signs and behaviors without physical contact**. While vision and motion-based solutions currently dominate the market, **sound-based applications remain in early stages of development and have yet to be commercialized**.

Vision-based healthcare sensing refers to the **use of cameras, IR sensors, and computer vision technologies to monitor**, **detect**, and **analyze health-related parameters** without requiring physical contact.

USA

binah.ai
Health Checks Anywhere

Binah.ai's Health Data Platform is an AI-powered, video-based solution that enables anyone to measure a wide range of health indicators such as **heart rate, oxygen saturation, blood pressure, blood tests**, and more using a smartphone or tablet camera.

Vision

Finland

NE DEVICE SW

Vitacam (by **NE device SW**) is suited for routine measurements, continuous monitoring, or spot checks for **pulse monitoring and heart conditions**. The system works either via a mounted **webcam or by recording a short video clip on a mobile**.

A diversity of product offerings (2/2)

Further, we have **motion-based diagnosis products** for humans. By providing continuous, non-invasive monitoring, motion-based diagnosis products support early diagnosis, rehabilitation, and personalized healthcare.

Motion-Based Healthcare Sensing **refers to the use of sensors (radar, LiDAR, and accelerometers) to track movements**, **micro-movements**, or **gestures for detecting health conditions, monitoring patients, and enabling non-contact healthcare**.

Israel

neteera

Neteera's Solution (**130H-Plus)** is a high-frequency, contactless patient monitoring solutions that monitors **heartrate**, **breath rate**, **bed exit activity**, and **position change/ movement** of the patients, **without the need for physical touch**.

Canada

XANDAR KARDIAN

XK300-H is designed to bring hospital-grade monitoring to home health settings. With advanced radar technology and an intuitive setup process, it provides continuous, autonomous, contact-free & ambient **vital sign monitoring, while the patient is resting or sleeping**, and keeps a track of **heart rate** and **breath rate**.

Expanding the Ecosystem: Touchless Tech for Animals

While the majority of innovation in touchless healthcare sensing targets human applications**, a small but emerging segment focuses on vision-based solutions for animals**. These applications underscore the potential of computer vision in enhancing animal health and welfare monitoring.

The solutions are designed to track movement, posture, and behavior as indicators of health and welfare. They are increasingly applied in **livestock management, where cameras help detect lameness, stress, or abnormal activity at an early stage**, and in **pet care, various vision tools support activity monitoring and behavioral analysis**.

USA

cainthus by Ever.Ag

Cainthus technology (Alus- feedbunk management), used in both Nutrition and Behavior, leverages an **intelligent camera system to continuously monitor animal behavior and farm operations**. Its advanced artificial intelligence converts visual inputs from cameras into real-time insights.

USA

Vero Veterinary Partners™

VetGuardian by Vero, is an excellent tool for pet owners who want to keep a **close eye on their pets' health and wellbeing**. With its advanced monitoring features, the VetGuardian provides pet owners with valuable insights into their pets' daily routines and helps them **take proactive steps to ensure their pets' optimal health**.

Collaborative initiatives across the industry

Collaborations are essential in today's interconnected business and research landscape, as they enable organizations to combine their strengths, resources, and expertise to achieve common goals more effectively.

Endava Partners with Binah.ai **on Enhanced Health and Wellness Monitoring Solutions**. The partnership allows organizations in the healthcare, pharma, wellness, and insurance sectors to swiftly and easily integrate Binah.ai's technology to provide quality, personalized care and services at lower costs.

27 Sep 2023

Clario and Sleepiz AG bring **innovative sleep and respiratory data collection features to clinical trials**. This partnership paves the way for novel data endpoints through patient-centric and unobtrusive monitoring with a focus on accurate and longitudinal data points.

23 Jun 2023

Binah.ai Partners with Polar Electro **to Provide Continuous Health and Wellness Monitoring**. The collaborative solution addresses a wide range of applications in the healthcare, wellness, and insurance sectors, for situations where continuous monitoring is imperative.

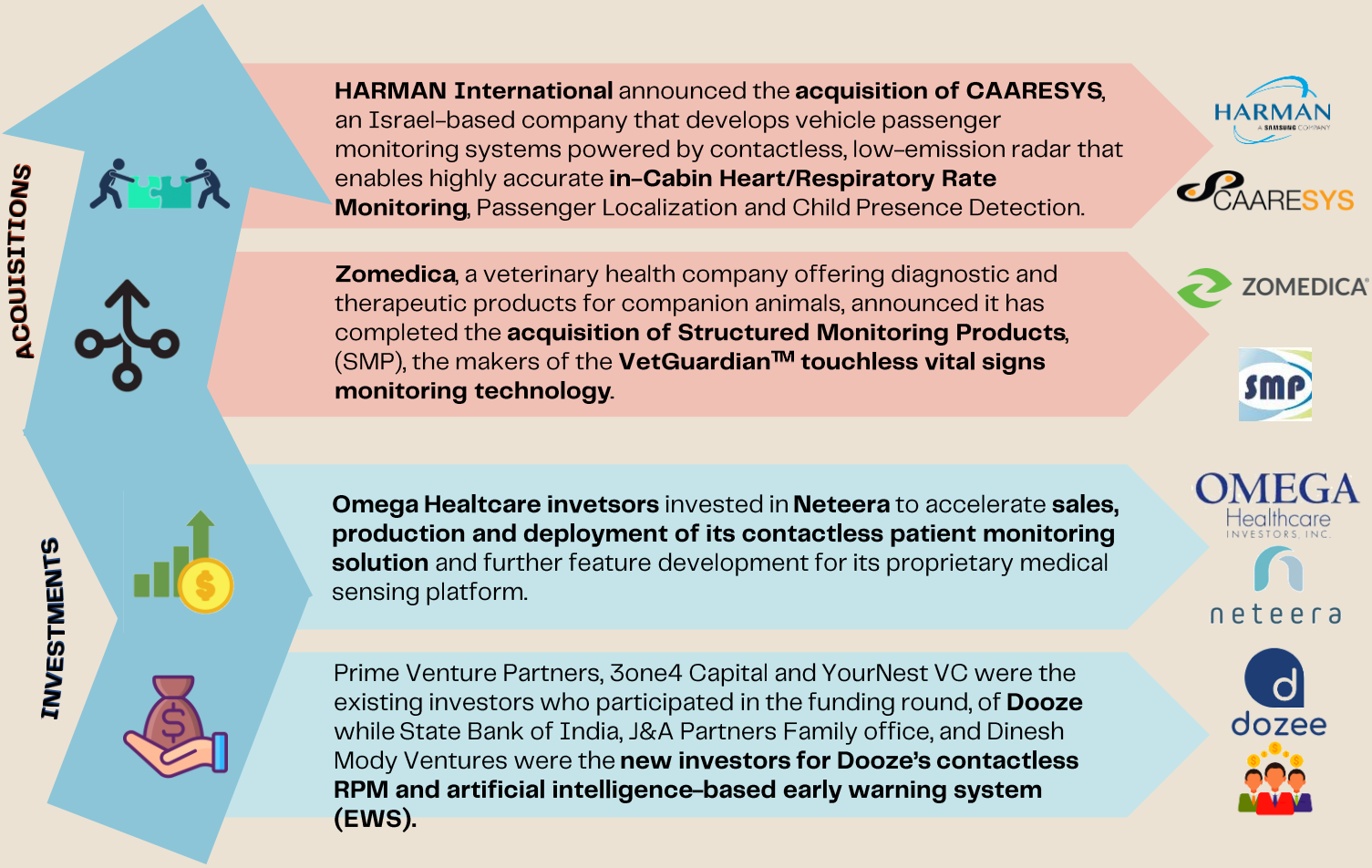
20 Sep 2023

NE Device SW, an innovative medical device manufacturer of software measuring vital signs from video, and Sehat Kahani, the leading digital health provider in Pakistan with a multi-population approach, announced the agreement **to pilot and deploy Vitacam to bring contactless measurements to underserved communities.**

02 Jan 2023

Acquisitions and Investments across the industry

Beyond partnerships, acquisitions and investments are key drivers of growth and competitiveness in touchless sensing. Acquisitions enable market expansion, technology access, and IP strength, while investments support R&D, scaling, and long-term sustainability.



Recent Innovations in Touchless Sensing

Wireless health monitoring is advancing quickly, offering the ability to track breathing, heart rate, and other vital signs passively and continuously, without relying on wearables like smartwatches, fitness bands, or traditional medical devices.

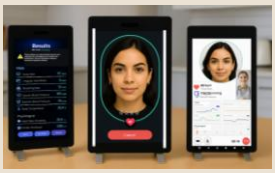
Alongside the opportunities lies a critical challenge: “Data safety”

DATA SAFETY

Cornell University

- In June 2025, Addressing the above issue , **researchers at Cornell Tech have developed VitalHide**, which is a privacy-aware wireless sensing that enables continuous, contactless monitoring in healthcare and home settings.

Revolutionizing Digital Health– One Face at a Time™



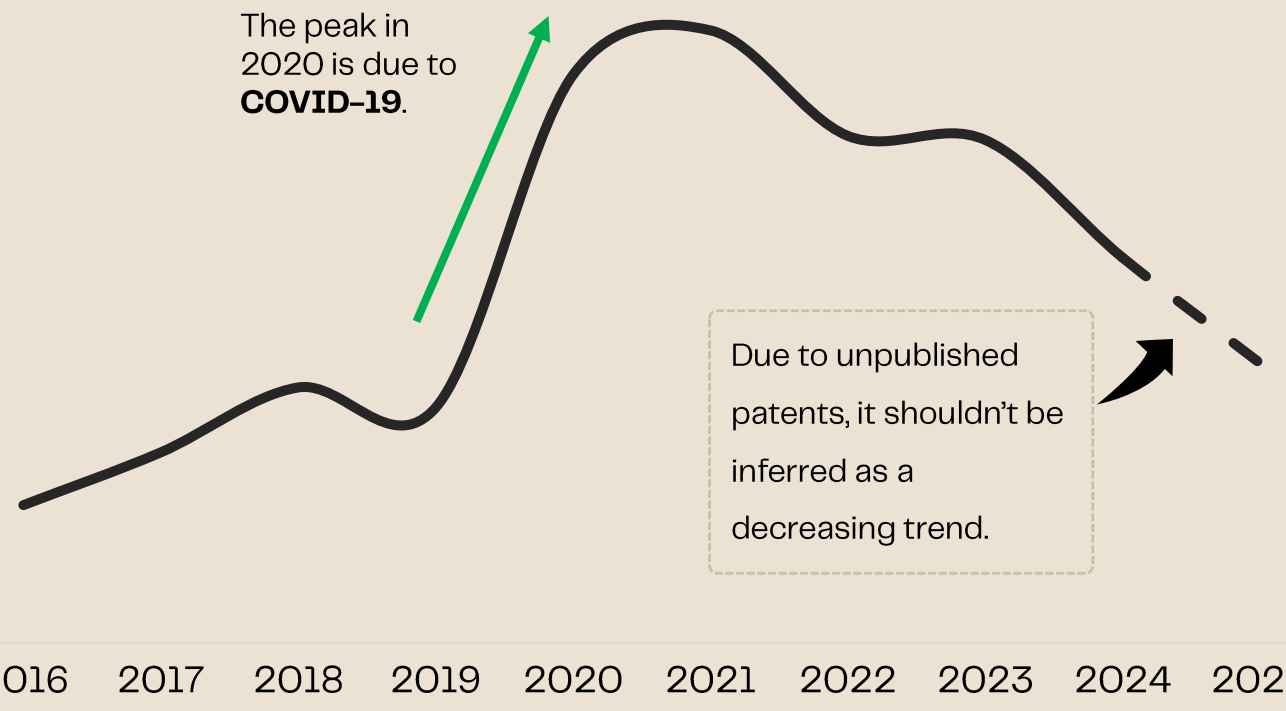
nuralogix™

- Nuralogix has developed a **video-based health and wellness insights solution that can measure over 100 health parameters and condition likelihoods in just 30 seconds** by just scanning face via any camera. Still the clearance/ approvals as a medical device for this product are pending.

Innovation pacing up across the patent segment

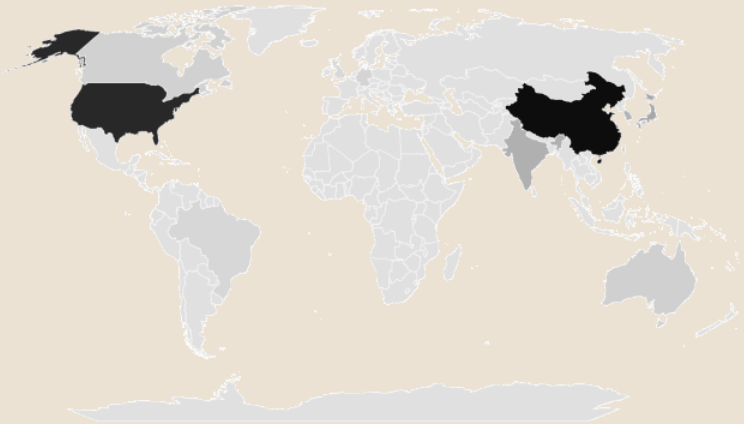
Filing trend

The patent filings in the domain of touchless sensing have seen an exponential peak in **2020** and **2021**.



The graph highlights a sharp rise in patent filings in the touchless sensing domain beginning in 2020, with notable peaks in 2020 and 2021, followed by consistently high activity in subsequent years. This trend underscores the domain's emergence as a rapidly growing technology area with sustained innovation momentum.

Preferred Regions for patent protection

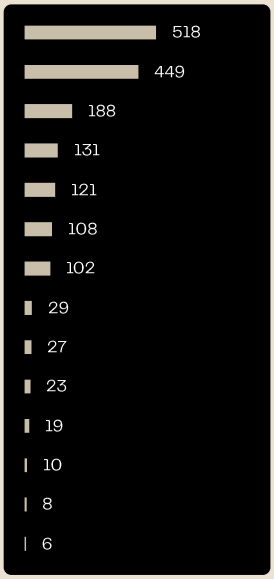


Countries

Filing year

Most preferred geographies

	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
CN	22	23	37	40	60	76	61	73	76	50
US	41	22	38	45	67	77	54	62	37	6
WO	12	14	25	21	26	30	15	29	16	
JP	11	15	21	13	18	16	16	13	6	2
EP	9	14	19	17	12	21	13	15	1	
IN	1	8	3	3	6	13	9	22	22	21
KR	3	6	4	6	26	14	24	13	5	1
AU	1	3	4	2	5	7	1	4	1	1
CA	2	7	3	3	4	5		3		
TW	1		2	2	3	7	4	4		
DE	2	1	1	1	5	3	6			
BR		1	2	1		2	1	3		
GB				1	4	1			2	
RU		1			1	2	1	1		



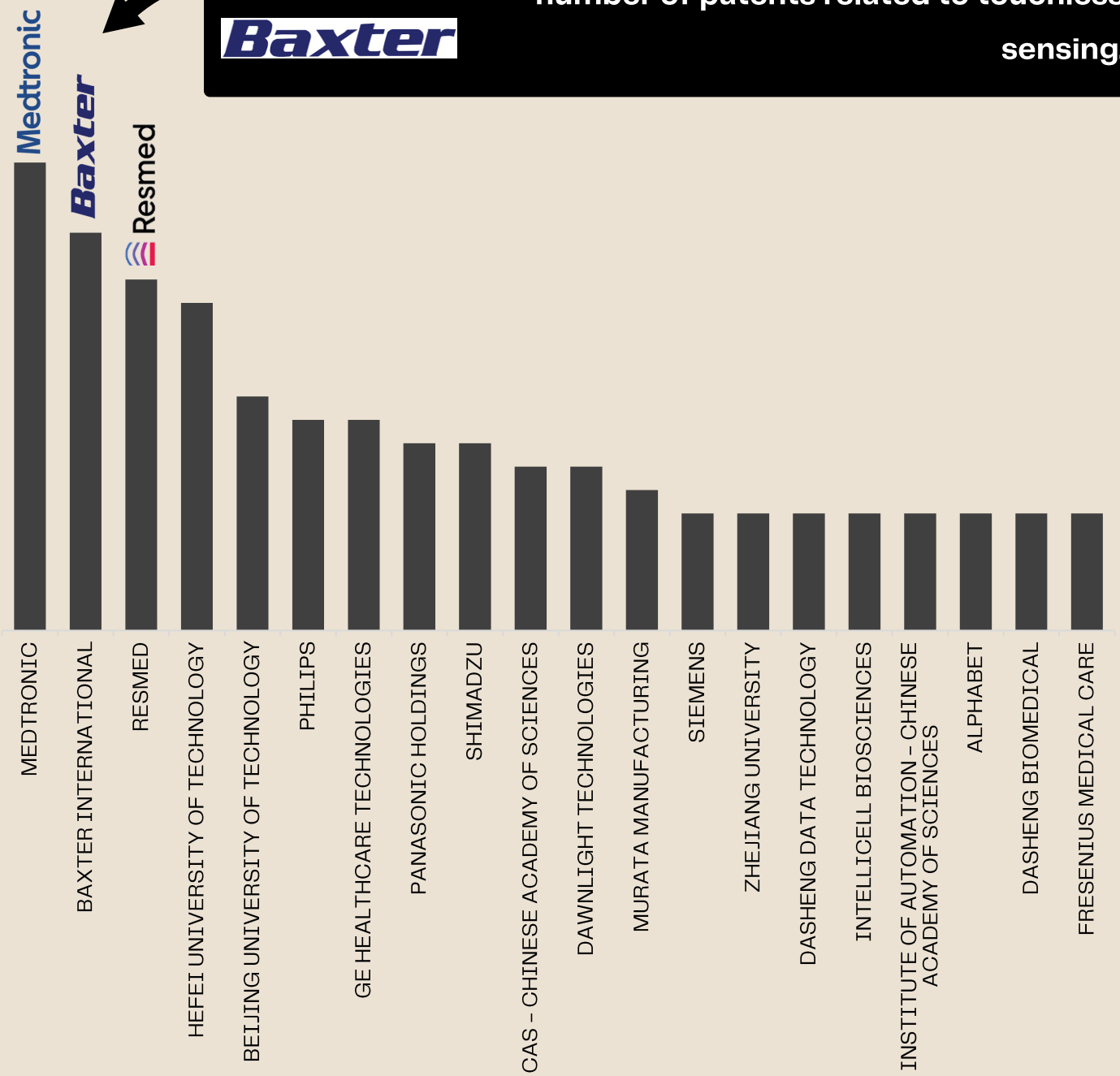
China and the USA are currently the most preferred regions for touchless sensing. Recently, there has also been a significant increase in filings in India.

Key Players leading the patent race

Medtronic

Baxter

Medtronic and Baxter hold the maximum number of patents related to touchless sensing.



Key Players Focus Across Target Subjects

Innovation in touchless sensing is primarily focused on two target segments: human applications and animal applications.

Humans

Medtronic
Baxter
GE HealthCare
SHIMADZU
Excellence in Science
DawnLight
muRata
INNOVATOR IN ELECTRONICS
SIEMENS
Alphabet

ACCRETECH
TOKYO SEIMITSU
revvity
PHILIPS
Resmed
Panasonic
GUANGZHOU
WALIANGGE ROBOT
TECHNOLOGY

Alibaba
NIXON
BUREAU VERITAS
ZTE
VALIANT-X
ENTERPRISE

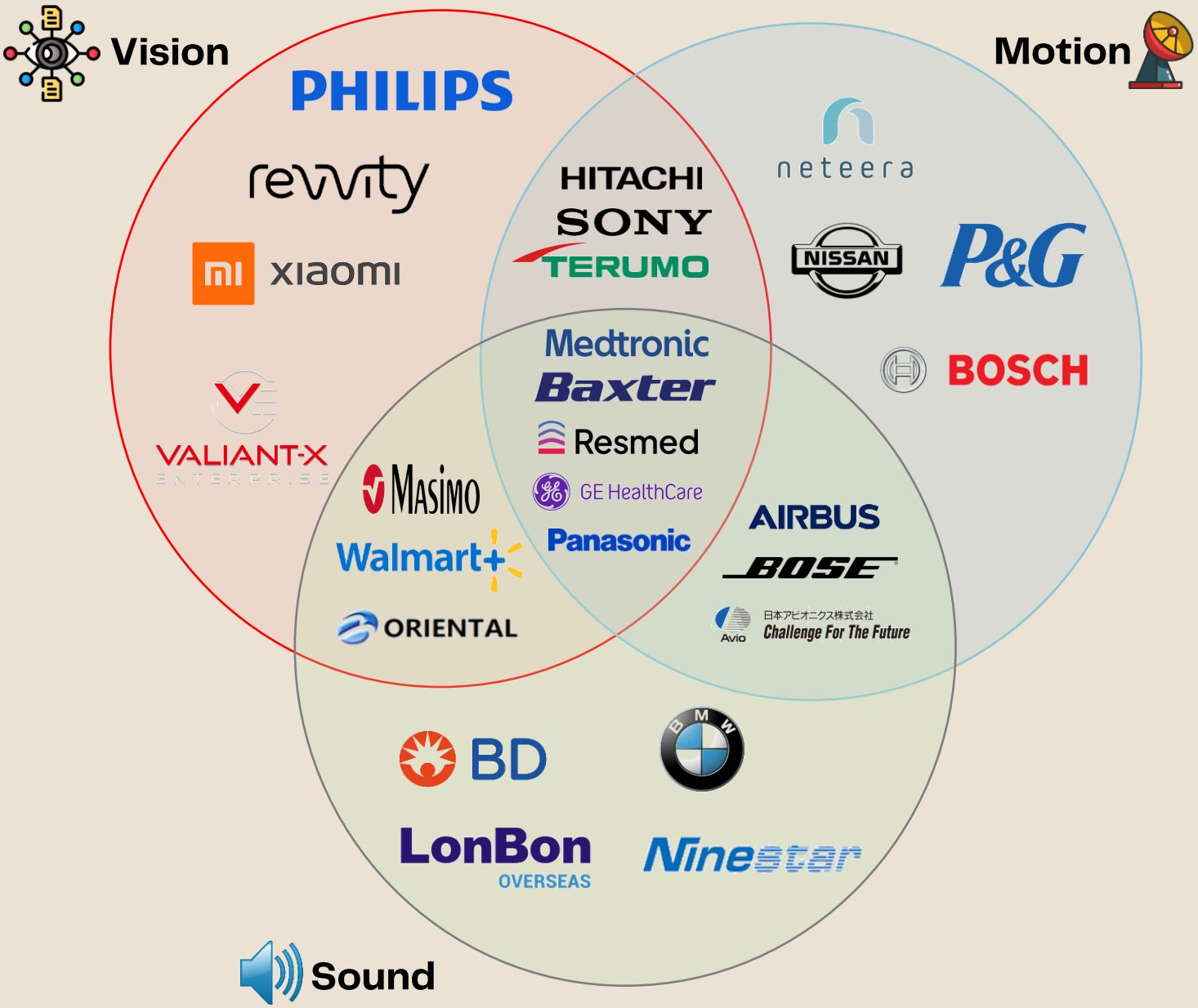
Animals

Companies such as **ResMed**, **Panasonic**, and **Philips** are actively developing solutions that cater to both human and animal applications.

Players such as **Medtronic**, **Baxte**r, etc. are primarily focused on human healthcare technologies, while **Alibaba**, **ZTE**, etc. are more involved in innovations for animals.

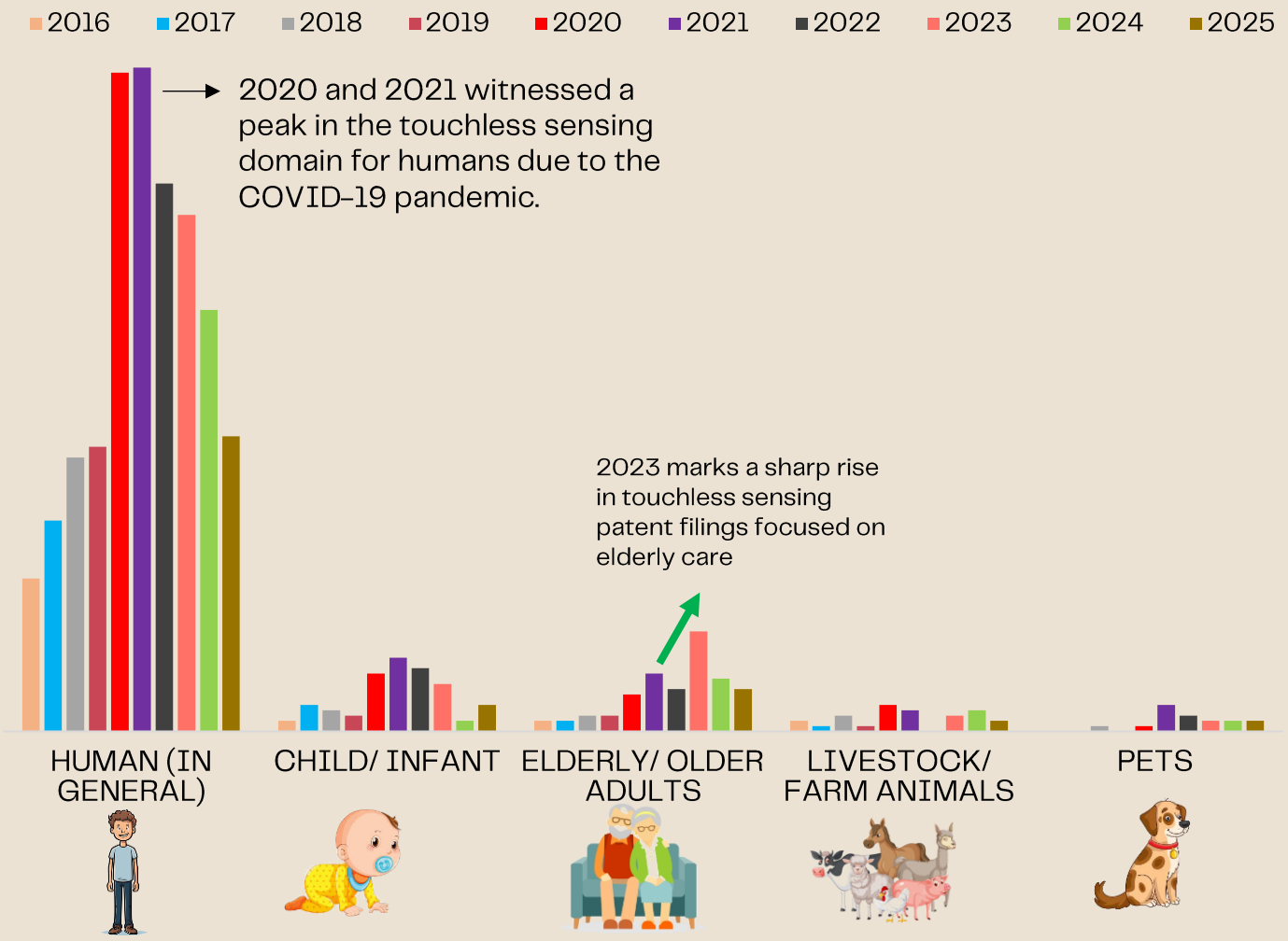
Key Players Focus Across Diagnostic Modalities

Key players are advancing innovation across different diagnostic modalities, focusing **on vision-based**, **motion-based**, and **sound-based diagnosis**.



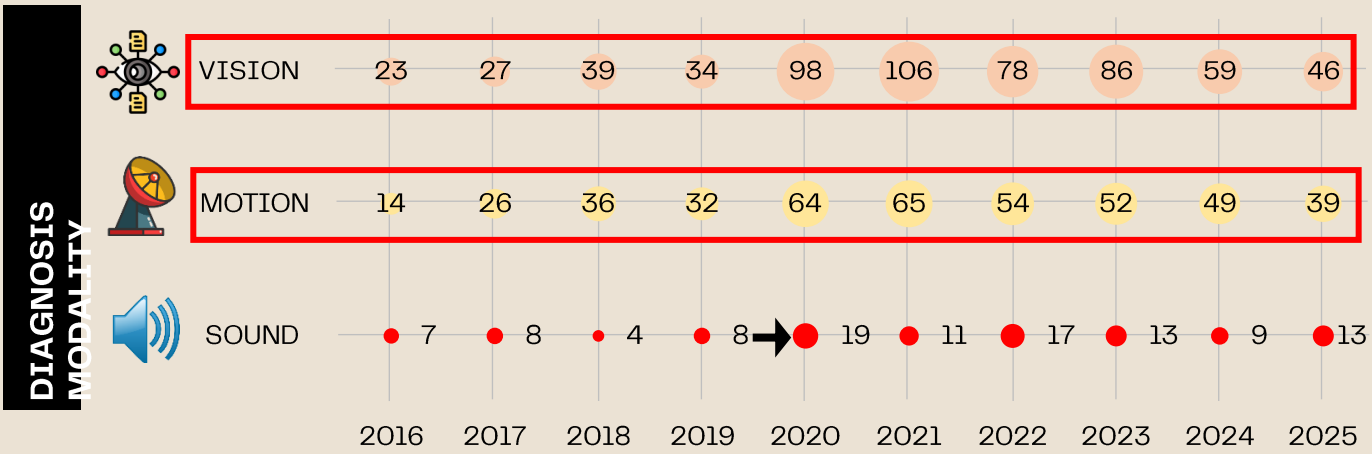
Focused targets over the years

Over the past decade, innovators have significantly focused on touchless sensing technologies **for humans**, **as we can see a rise in all years** in this category, while the **areas of pets and livestock animals are still in the initial stages**, with very limited patent filings across the globe.

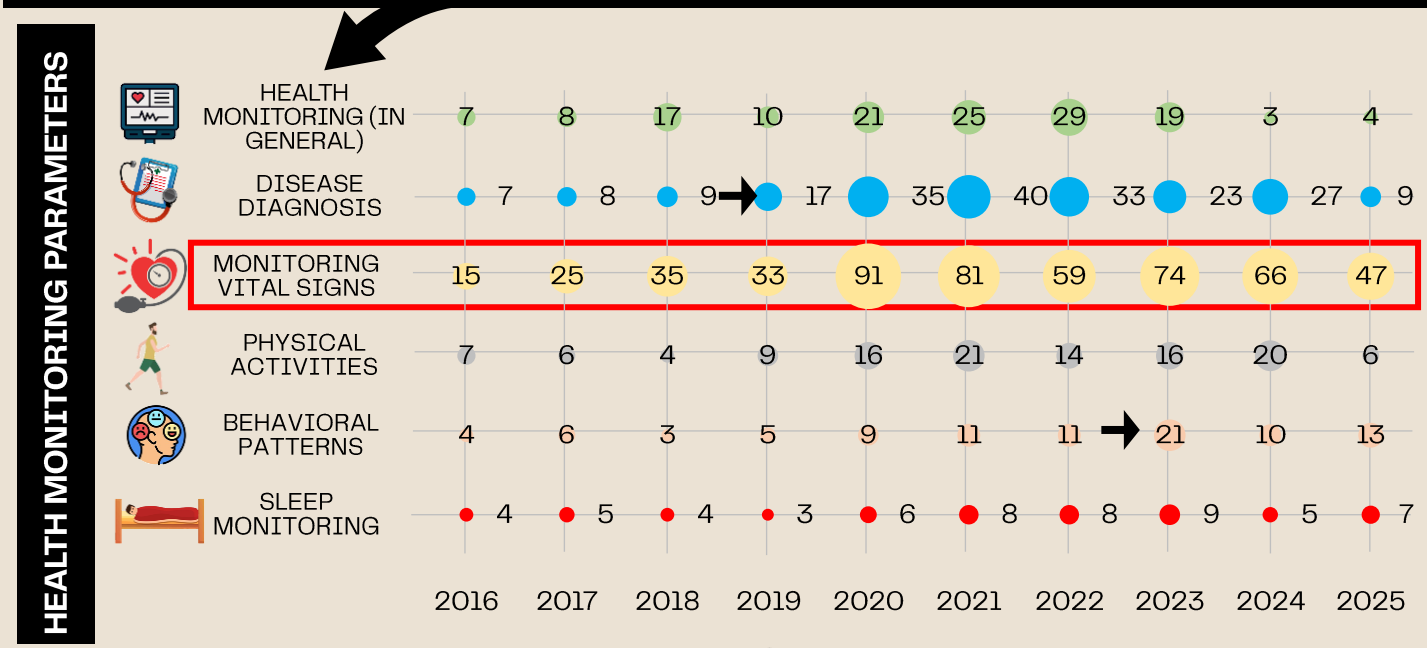


Technological fields growth over the years

Over the past decade, research has largely focused on **vision and motion-based touchless sensing technologies**, but in recent years, there has been a growing wave of innovation in **sound-based touchless sensing** as well.



Vital signs monitoring has been at the forefront of health monitoring parameters using touchless sensing, with disease diagnosis and behavioral patterns as emerging areas.



Technology areas distribution for various target subjects

TARGET SUBJECTS →	HUMANS (IN GENERAL)	INFANTS/ CHILDREN	ELDERLY/ OLDER ADULTS	LIVESTOCK/ FARM ANIMALS	PETS
DIAGNOSIS MODALITY					
VISION	614	65	44	25	11
MOTION	454	44	59	14	11
SOUND	120	21	12	6	3
HEALTH MONITORING PARAMETERS					
HEALTH MONITORING (IN GENERAL)	166	16	7	4	1
DISEASE DIAGNOSIS	231	13	15	18	6
MONITORING VITAL SIGNS	534	66	49	20	11
PHYSICAL ACTIVITIES	121	15	12	4	2
BEHAVIORAL PATTERNS	77	10	24	4	4
SLEEP MONITORING	64	8	11	1	2

For **livestock/ farm animals, and pets, vision and motion-based** modalities dominate health monitoring, while **motion-based sensing is favored for older adults.** In contrast, **sound-based technologies remain less explored across all target groups.**

Top Patents in Touchless Sensing

Top patents in touchless sensing highlight the most innovative and protected technologies driving non-contact healthcare monitoring. These patents cover advancements in radar, optical, and AI-based systems that enable vital sign tracking, motion detection, and health diagnostics without physical contact.

US11980484B2

Resmed

Aug 2015

This patent focuses on combining data from **radar, infrared, and acoustic sensors** to provide a comprehensive contactless health monitoring system **for chronic disease, such as a chronic respiratory and/or cardiac disease, including, for example, asthma, chronic obstructive pulmonary disease (COPD), or congestive heart failure (CHF).** The fusion algorithm enhances accuracy in detecting motion, falls, and changes in vital signs.

This patent outlines a system to **monitor physiological parameters using cameras like heart rate, blood pressure, and respiration without any physical contact**. It uses signal processing algorithms to filter noise and accurately detect vital signs, making it useful in clinical, home, and remote settings. A medical communication protocol translator can be configured to facilitate communication between medical devices that are programmed to communicate with different protocol formats.

US12062439B2

Masimo

Oct 2007

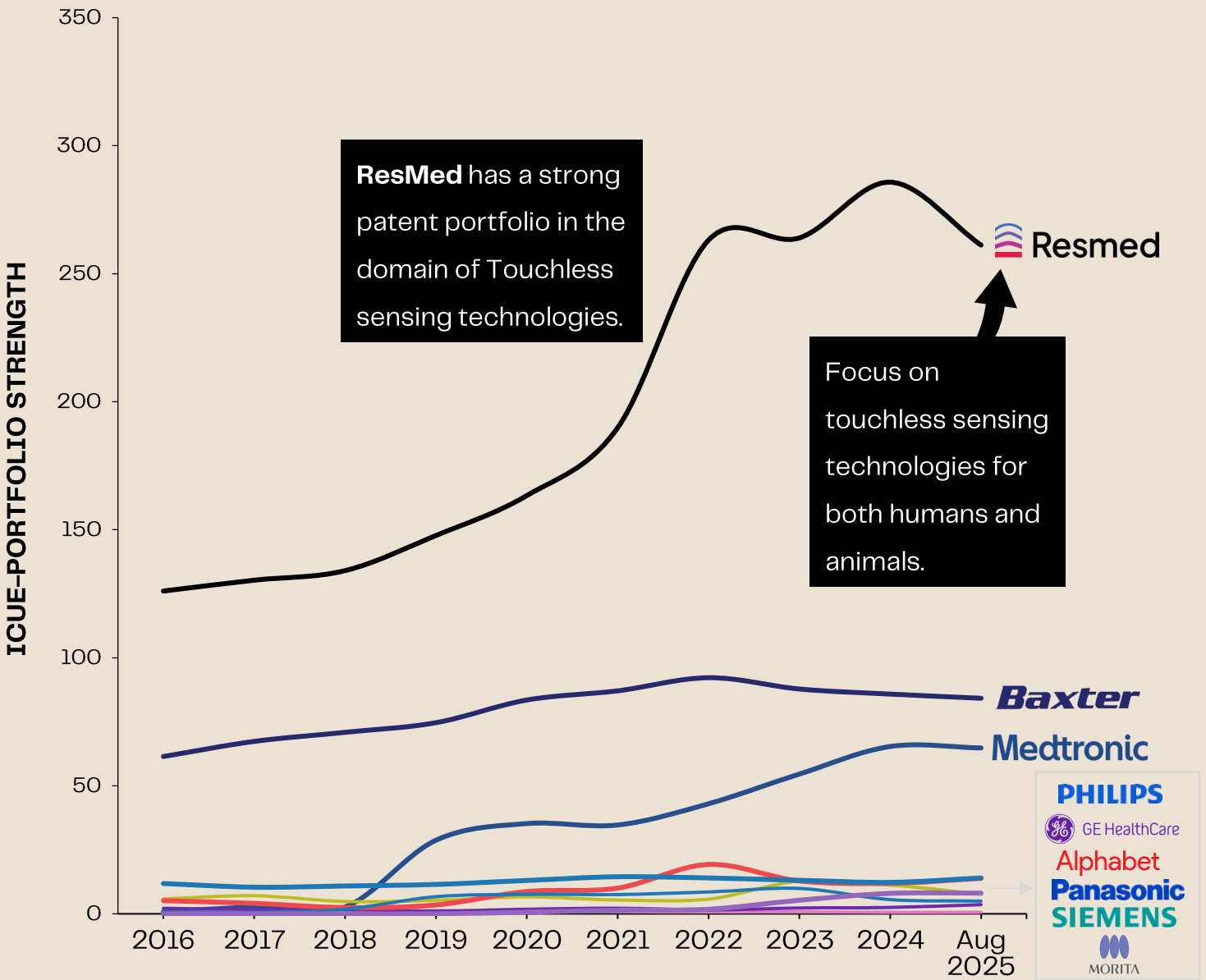
US12207916B2

Medtronic

Feb 2016

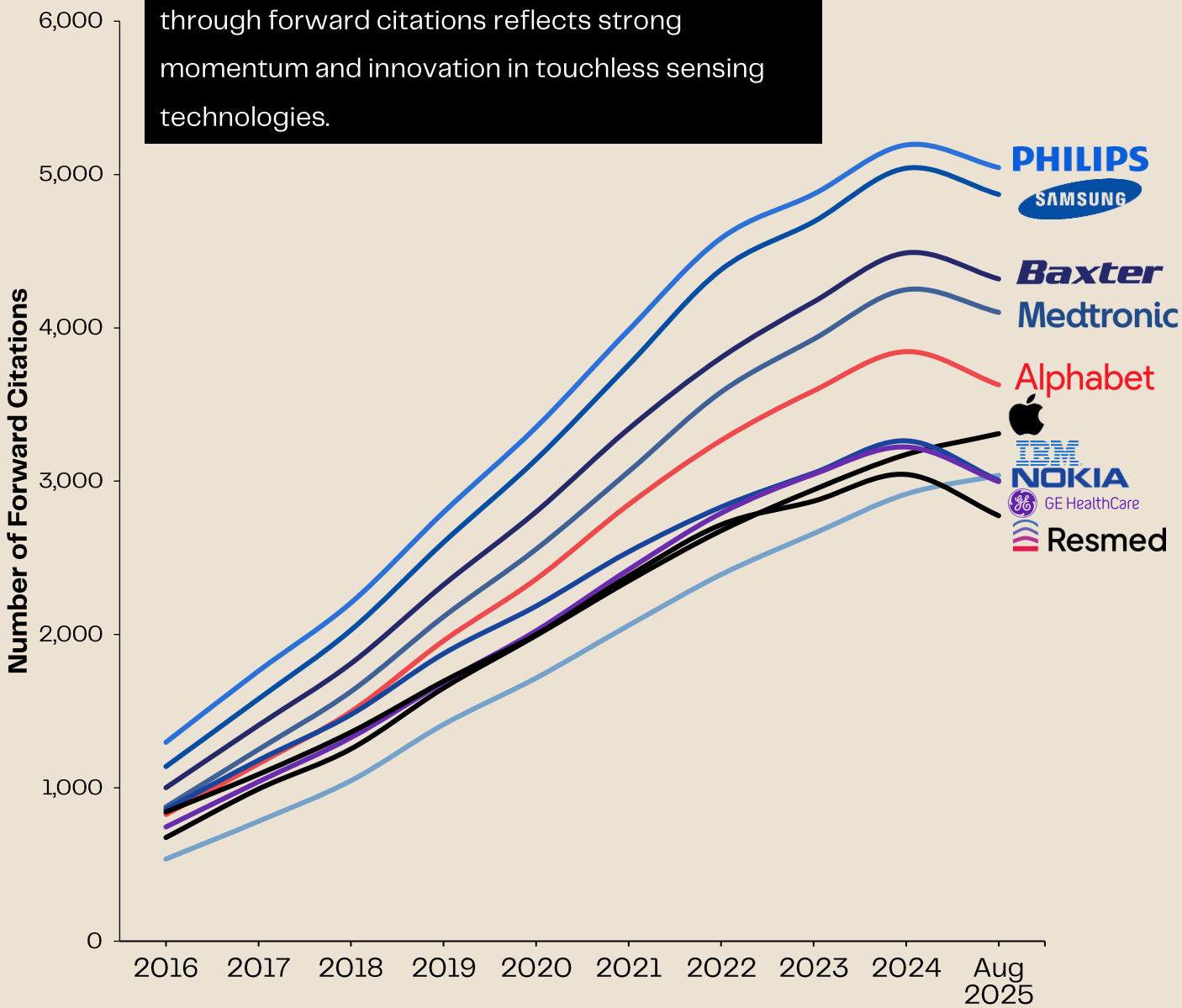
This patent relates to the field **of video-based medical monitoring, and in particular, non-contact, video-based monitoring of pulse rate, respiration rate, motion, and oxygen saturation**. It's designed for integration into mobile devices and telemedicine platforms. As the system receives signals, those signals are filtered to focus on a physiologic component and a vital sign.

How have top players' patent portfolios evolved over time?



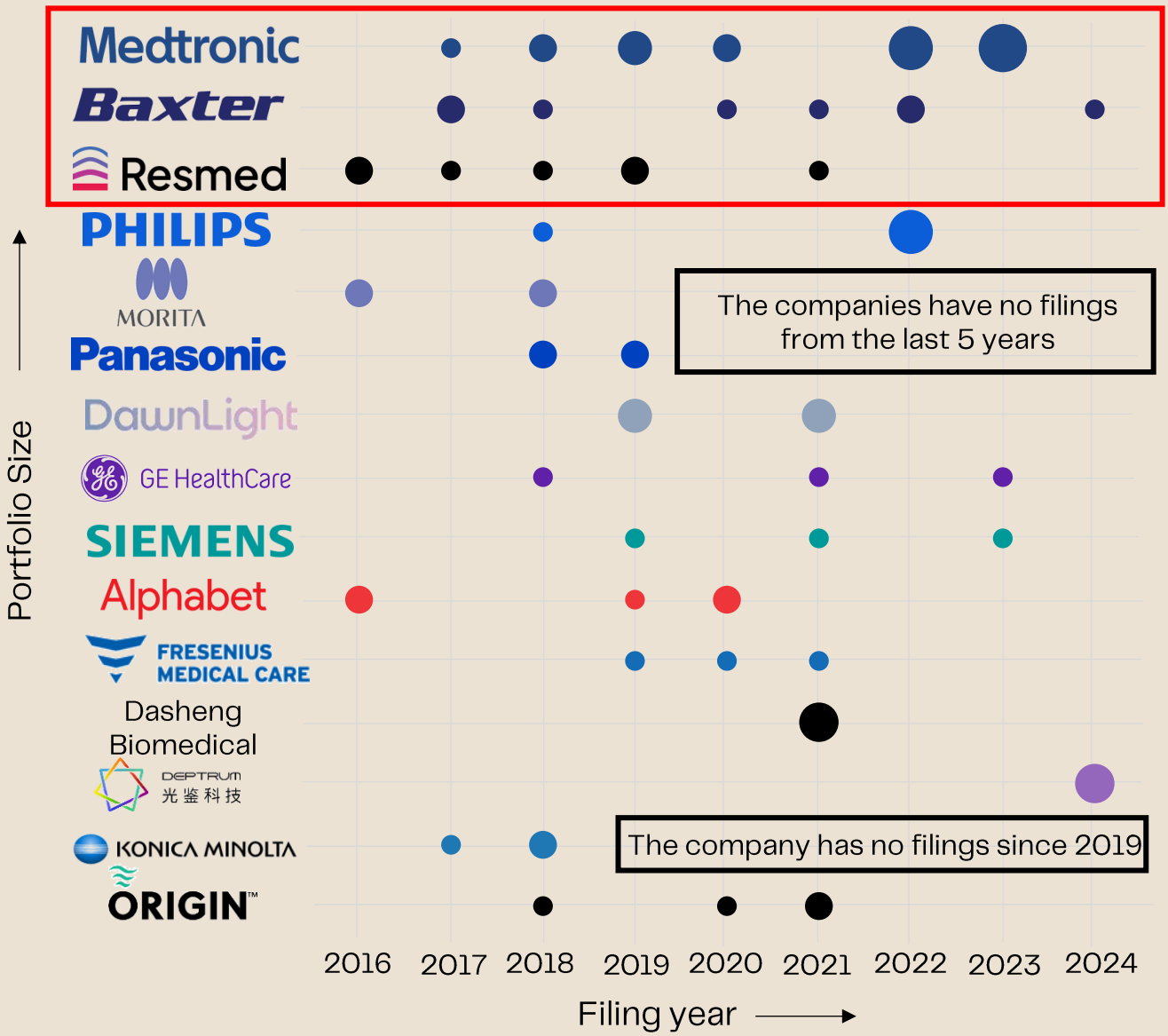
Leading players citing the relevant publications

The involvement of top companies from fields such as software, electronics, and medical through forward citations reflects strong momentum and innovation in touchless sensing technologies.



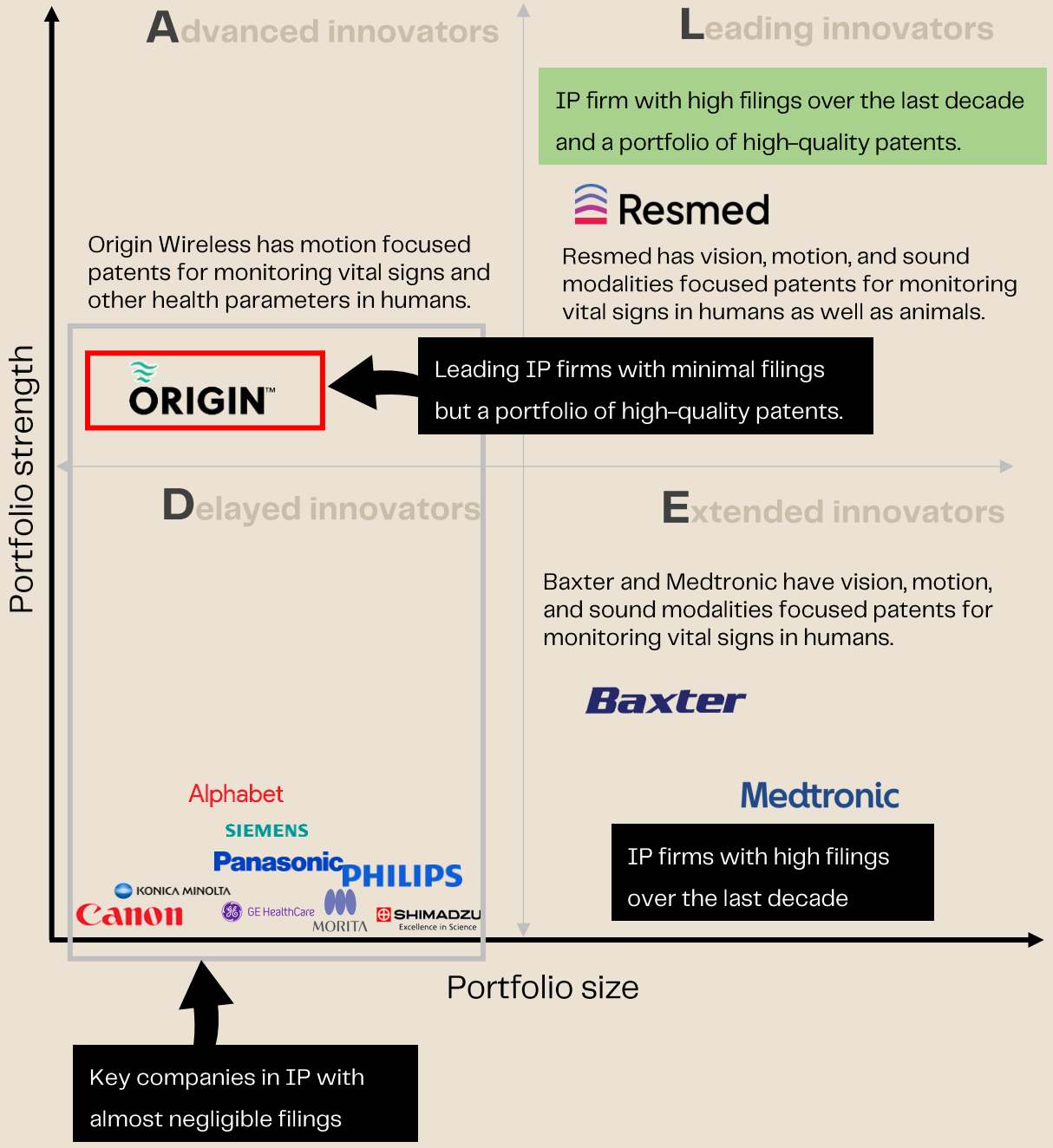
Leading players' portfolio size over the years

Over the last decade, players like Medtronic, Baxter, and Resmed have consistently pursued patent filings in the domain of touchless sensing, underscoring their long-term commitment to innovation and strengthening their positions.



Technology LEADerboard chart™

IP Overview



The chart is divided into four sections, wherein each section defines a specific group of companies based on the **quantitative and qualitative strength of their patent portfolio**.

FAQs

- ✓ What key technologies are used in touchless sensing?
- ✓ Which companies/institutions hold the most patents in this domain?
- ✓ What are the major business domains showing interest in this field?
- ✓ What health conditions can touchless sensing diagnose or monitor today?
- ✓ What sources of data/signals are used to enable touchless healthcare sensing?
- ✓ Which companies hold the best patent portfolio strength?
- ✓ What are the region-specific opportunities and threats for product launches?
- ✓ What product offerings currently exist in this domain?
- ✓ How can new entrants innovate to establish a strong market presence?
- ✓ Which specific sensing technologies are best suited for diagnosing particular diseases?
- ✓ Which academic and clinical research institutions are most active in advancing touchless sensing technologies?
- ✓ What recent market activities or collaborations stand out?
- ✓ How will advances in AI and machine learning shape the next generation of touchless sensing technologies?
- ✓ Could multimodal sensing (vision + radar + acoustics + odor) become the gold standard for future healthcare monitoring?
- ✓ What role will quantum sensors or next-gen nanomaterials play in enhancing health monitoring sensitivity and accuracy?
- ✓ How might regulatory frameworks evolve to enable large-scale adoption of non-contact health monitoring?
- ✓ What are the cybersecurity and data privacy challenges that could impact the scalability of touchless healthcare solutions?

Do you want to see a complete report answering all these above questions along with other essential insights?

Then, you may set up a demo of our complete report by writing to us at info@icuerious.com or call at +1-(339)-237-3075 (USA) | +91-(988)-873-2426 (India)

About us?

ICUERIOUS is an intellectual property (IP) consulting firm providing full-service technology support for the entire stage of the IP process, with a focus on patents. We work closely with a diverse set of clients, including Fortune 500 companies, premier IP law firms, patent monetization and brokerage firms, independent inventors, and universities and focus on creating valuable IP ecosystems and patent monetization strategies via litigation and/or licensing. Our main services include prior art and invalidation searches, target scouting, evidence-of-use charting and detailed infringement analyses, patent drafting, open-source and proprietary source code review, competitor benchmarking and business/IP intelligence, technology landscaping and whitespace analysis reports, patent monitoring and market research.

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