

# **Digital Scent Technology Market by Hardware Device (E-Nose, Scent Synthesizers), End-Use Product (Medical Diagnostic Products, Quality Control Products), Application (Medical, Food & Beverages, Military & Defense) and Region - Global Forecast to 2029**

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## **Abstracts**

The Digital Scent Technology market is projected to grow from USD 1.2 billion in 2024 and is projected to reach USD 2.0 billion by 2029; it is expected to grow at a CAGR of 10.5% from 2024 to 2029. Heightened demand to detect explosives in airports and military checkpoints, development of sensitive and durable sensors embedded with AI algorithms, integration of e-nose technology in gaming, and rising popularity of e-nose in AR/VR applications to fuel the growth of Digital Scent Technology market.

“Market for e-nose to hold the largest share during the forecast period.”

An electrochemical nose, also called an e-nose or, electronic nose, or micro nose, is an artificial olfaction device integrated with an array of chemical gas sensors, a signal processing unit, a sampling system, and a system with a pattern classification algorithm used for the analysis of gases, vapours, or Odors. Simply put, it is an array made up of chemical gas sensors housed in a device that uses pattern recognition to recognize, identify, and compare Odors. Electronic nose to detect Odor integrates various sensor technologies, such as piezoelectric sensor, polymer sensors, optical fiber sensor, and MOSFET sensors. Polymer sensors are gaining significant adoption in e-nose due to numerous advantages such as they offer high sensitivity and broad detection range. These sensors are ideal for portable devices and customized applications, their low lower consumption, ability to operate at room temperature, and customizable selectivity

set them apart.

“Market for quality control products holds for second-largest market share during the forecast period.”

Digital scent technology is gaining significant adoption for quality control products, as it helps in early spoilage detection and improve accuracy to boost demand. Traditional methods of poultry quality control, relying on visual inspection, physical manipulation, and chemical analysis, face challenges such as subjectivity, destructiveness, and limited scope. In response, digital scent technology emerges as a promising alternative. This technology ensures objective and non-destructive analysis by utilizing sensors to detect volatile compounds emitted by poultry products. The benefits include improved accuracy and consistency, early spoilage detection, identification of specific contaminants, and rapid, non-destructive analysis. For instance, in January 2021, researchers from Skoltech developed an 'e-nose' and computer vision system to detect the readiness of grilled chicken, aiming to automate quality control in kitchens, potentially improving consistency and safety. Already implemented in some poultry processing plants, ongoing research aims to enhance detection capabilities. The potential of digital scent technology spans the entire poultry supply chain, offering a comprehensive solution for consistent, high-quality control from farm to fork, addressing food safety and authenticity concerns.

“Market for Medical segment is projected to hold for largest share during the forecast timeline.”

E-nose technology helps in the early detection of diseases by sensing the odor of human breath. Early detection of diseases can save a patient's life and reduce the cost of treatment. Moreover, e-nose is widely used for the detection of diseases such as TB and different types of cancers. In March 2023, New Zealand-based start-up Scentian Bio successfully developed a groundbreaking biological electronic nose capable of detecting human diseases, including tuberculosis and malaria. The company's Chief Technology Officer utilized insect smell receptors to create a biosensor for identifying odors. E-noses, by analyzing volatile organic compounds in a patient's breath, offer a quick and patient-friendly approach to diagnosis, potentially contributing to the goal of detecting lung cancer at earlier stages when interventions are more effective.

“North America is expected to have the largest market share during the forecast period.”

The digital scent technology market in North America has been studied in the US, Canada, and Mexico. The larger share of North America in the global digital scent technology market is driven by the rising demand from end users such as the food & beverage, medical, marketing, and entertainment industries. These end-user industries have a large presence within North America, which consequently drives the demand for digital scent technology. The US and Canada are leading the market in North America due to rising technological enhancements and the growing adoption of AI in these countries. Moreover, North America's mature and tech-savvy consumer base has quickly embraced sensory technology innovations. The region's consumers are increasingly seeking personalized and immersive experiences, which has fueled the demand for digital scent technology in products ranging from smart home devices to virtual shopping experiences. This trend is expected to propel the market growth in the coming years.

Extensive primary interviews were conducted with key industry experts in the Digital Scent Technology market space to determine and verify the market size for various segments and subsegments gathered through secondary research. The break-up of primary participants for the report has been shown below:

The break-up of the profile of primary participants in the Digital Scent Technology market:

- By Company Type: Tier 1 – 45%, Tier 2 – 30%, and Tier 3 – 25%
- By Designation: C Level – 40%, Director Level – 35%, Others-25%
- By Region: North America – 30%, Europe – 22%, Asia Pacific – 40%, ROW- 8%

The report profiles key players in the Digital Scent Technology market with their respective market ranking analysis. Prominent players profiled in this report are Siemens (Germany), Amphenol Corporation (US), Sensirion AG (Switzerland), Honeywell International Inc. (US), Renesas Electronics Corporation (Japan), Envirosuite Ltd (Australia), Alpha MOS (France), Electronic Sensor Technology (US), Aromajoin Corporation (Japan), Figaro Engineering Inc. (US), Bosch Sensortec GmbH (Germany), and Alphasense (UK) among others.

Apart from this, Sensigent LLC (US), AIRSENSE Analytics GmbH (Germany), ScentSational Technologies LLC (UK), Scent Sciences (US), The eNose Company (Netherlands), COMON INVENT B.V. (Netherlands), Aryballe technologies (France),

Plasmion (Germany), Noze (Canada), SMELLDECT GmbH (Germany), RoboScientific (UK), AerNos, Inc. (US), CDx, Inc., (subsidiary of MyDx, Inc.) (US), GERSTEL (Germany), Breathomix (Netherlands), Olorama Technology Ltd. (Spain), SmartNanotubes Technologies GmbH (Germany), FlavorActiV. (UK), mui-robotics (Singapore), CROMATOTEC GROUP (France) are among a few emerging companies in the Digital Scent Technology market.

**Research Coverage:** This research report categorizes the Digital Scent Technology market based on hardware device, end-use product, application and region. The report describes the major drivers, restraints, challenges, and opportunities pertaining to the Digital Scent Technology market and forecasts the same till 2029. Apart from these, the report also consists of leadership mapping and analysis of all the companies included in the Digital Scent Technology ecosystem.

**Key Benefits of Buying the Report** The report will help the market leaders/new entrants in this market with information on the closest approximations of the revenue numbers for the overall Digital Scent Technology market and the subsegments. This report will help stakeholders understand the competitive landscape and gain more insights to position their businesses better and plan suitable go-to-market strategies. The report also helps stakeholders understand the pulse of the market and provides them with information on key market drivers, restraints, challenges, and opportunities.

The report provides insights on the following pointers:

**Analysis of key drivers** (Growing adoption of e-noses in food industry for process monitoring freshness evaluation, and authenticity assessment, rising adoption of compact, portable, and IoT-enabled e-noses, growing deployment of e-nose devices for diagnosing diseases, integration of e-noses and synthesizers into smart homes) influencing the growth of the Digital Scent Technology market.

**Product Development/Innovation:** Detailed insights on upcoming technologies, research & development activities, and new product & service launches in the Digital Scent Technology market.

**Market Development:** Comprehensive information about lucrative markets – the report analysis the Digital Scent Technology market across varied regions

**Market Diversification:** Exhaustive information about new products & services, untapped geographies, recent developments, and investments in the Digital

## Scent Technologymarket

Competitive Assessment: In-depth assessment of market shares, growth strategies, and service offerings of leading players like Siemens (Germany), Amphenol Corporation (US), Sensirion AG (Switzerland), Honeywell International Inc. (US), and Renesas Electronics Corporation (Japan) among others in the Digital Scent Technologymarket.

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\*Details on Business Overview, Products/Solutions/Services offered, Recent Developments, and MnM View (Key strengths/Right to Win, Strategic Choices Made, and Weaknesses and Competitive Threats) might not be captured in case of unlisted companies.

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