



# Shaping the Future of Cooking

Stratuscent's Electronic Nose making everyday appliances smarter



STRATUSCENT

## Modern-day Homes

Today, our homes are becoming increasingly connected and smarter – whether it is smart locks, lighting, appliances, or home security. Having the pulse of our home accessible through our smartphones gives us comfort and a sense of security.

At the heart of this connectivity are an increasing number of Internet-of-Things (IoT) devices that connect to our Wi-Fi networks to provide the eyes, ears, touch, hands, and legs to our devices. Smart vacuums, for example, use infrared beacons as eyes to map their surroundings and bumpers with touch sensors to detect objects, meanwhile intelligent assistants use smart-hearing sensors to interpret information and execute commands.

There is one more human sense that has yet to be integrated into our connected devices – the sense of [smell](#).

## Cooking Safely and with great results

Achieving the optimal cooking point, particularly for unexperienced cooks, can be challenging. Let's take the example of meat: cooking the perfect steak or the perfect chicken by balancing high heat on the outside with low heat on the inside requires skill and practice. Reaching the right food temperature makes food safe for consumption by destroying dangerous pathogens that can cause food poisoning but overcooking the food will result in a very dry and dull meal.

[Stratuscent's eNose technology](#) is solving that problem by enabling smart cooking.



Stratuscent's AI-driven tech and intuitive user interface (UI) guides the cook through the process, step-by-step, acting as a [virtual sous-chef](#) by monitoring the aromas and providing instructions to the cook in real-time.

The UI allows users to train the AI with their own recipes (any recipe), to continue learning and to record the user's preferences to achieve the perfect meal, time and time again.

Any recipe can be boiled down to a series of stages such as:  
heating → adding ingredients → stirring / flipping → optimal cooking → removing food



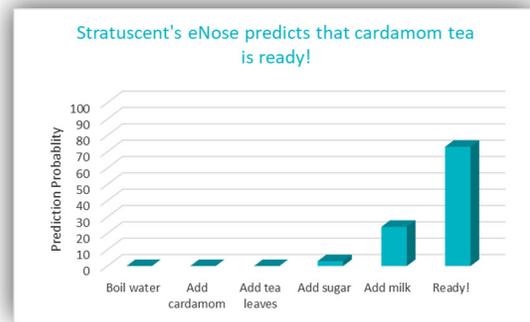
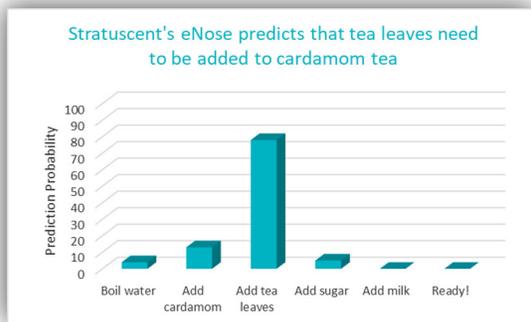
Stratuscent's eNose makes current stoves smarter



Stratuscent's eNose module installed on the stove hood

Each stage in this sequence has a unique and characteristic aroma that is captured by Stratuscent's eNose. As we transition between the stages based on the recipe or our previous experience, Stratuscent's AI learns the points of transition based on the changes in the food aromas captured by the eNose. Over time, the eNose trains itself to predict the stages of each recipe.

To us, the users, this provides the novel ability to know exactly when to perform an action, so that our grandmother's cardamom tea recipe will taste perfectly delicious every time!



A look into Stratuscent's AI predicting the different stages of a **cardamom tea** recipe based on aromas

Stratuscent's proprietary solution is the first ever AI-driven, small form factor, cloud-connected, and low-cost device in the market.

The versatile chemical sensing array embraces cross-sensitivity which is inspired by the functionality of the human nose. It leverages AI to deliver robustness in real-world environments like varying temperatures, humidity, and complex background scents in real-time and with great accuracy.

Stratuscent's eNose is based on technology that was developed at NASA's Jet Propulsion Lab (JPL) and installed in the International Space Station. After obtaining perpetual worldwide licensing rights to 6 patents, Stratuscent has improved and optimized the end-to-end system to provide real-time environmental intelligence in B2B, B2B2C and B2C applications.



### Proprietary Chemo-scent Receptors

At the core of Stratuscent's eNose is a 32-sensing-element chemiresistive array targeted towards the various functional groups of Volatile Organic Compounds (VoCs). As the scent flows over this array, the impedance of the sensing elements changes to create a **scentsprint** unique to each scent. This **scentsprint** is continuously captured and relayed to the cloud for interpretation. Thus, Stratuscent's proprietary chemo-scent receptors respond holistically to a scent.



### Bio-inspired Artificial Intelligence (AI)

Much like how our olfactory system works, the signal from the sensor (the "nose") is sent to the AI-enabled cloud (the "brain") for processing. Using proprietary machine learning techniques, the AI engine is able to not only detect the differences between different **scentsprints** (e.g. orange versus garlic) but also able to detect changes in the **scentsprints** over time (e.g. during cooking) in various humidity and temperature conditions and in the presence of complex background scents.



In a true bio-mimicking fashion, just like how we don't switch our noses between smelling flowers and wines, Stratuscent's solution doesn't require different eNoses for different aromas. Leveraging the capabilities of the Microsoft Azure cloud, the same eNose unit can be remotely software-upgraded with improved capabilities or additional target aromas. Moreover, Stratuscent's eNoses continually learn from all the other eNoses.

## Contact Stratuscent to learn more

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### ABOUT

## Stratuscent Inc.

Stratuscent's breakthrough portable, real-time, and low-cost electronic nose leverages chemical sensing and artificial intelligence (AI) to detect, digitize, and catalog simple and complex everyday scents thereby enhancing brand identification, quality control, yield, and safety. Incorporated in 2016 with offices in Montreal, Stratuscent Inc. was incubated at TandemLaunch, is a graduate of Creative Destruction Lab 2018 and a winner of the 2019 C.L.I.C. Challenge. [www.stratuscent.com](http://www.stratuscent.com)