# Scientists develop e-Taste device to enable remote flavour experiences



Scientists have unveiled an innovative new device named the "e-Taste," designed to allow users to experience flavours remotely by emulating taste sensations through electrical signals and chemicals. Developed by a team at Ohio State University, this device could significantly enhance virtual reality (VR) and augmented reality (AR) experiences, offering a range of potential applications from immersive gaming to remote education and even biomedical research.

The e-Taste system is built around two main components. The first is an "electronic tongue" that captures data about the concentrations of five key taste chemicals from liquidised samples of food or drink. These chemicals include glucose for sweetness, citric acid for sourness, sodium chloride for saltiness, magnesium chloride for bitterness, and glutamate for umami — the savoury taste. The gathered data is then transmitted wirelessly to a secondary device that utilises small electromagnetic pumps to deliver these flavours through a gel layer to a device placed in the recipient’s mouth.

Yizhen Jia, a co-author of the study, explained that the system allows flavours to be directed to specific areas of the tongue. “People will get something like a straw in their mouth, and thus placing it to specific locations when needed,” Jia noted. This precision could facilitate further investigation into human taste perception, contributing to a deeper understanding of how tastes are processed.

In their initial tests, the researchers engaged 10 volunteers to sample various intensities of sourness, achieving an overall accuracy rate of 70%. Another round of tests involved six volunteers identifying taste representations of different foods — lemonade, cake, fried egg, coffee, and fish soup — based on the liquid generated by the system. The participants accomplished this with an impressive accuracy of nearly 87%, although the researchers acknowledged the system currently struggles with replicating the complex sensations of spiciness and fattiness.

The implications of this technology, which was detailed in the journal Science Advances, could transform several fields. The researchers suggest that potential uses extend beyond entertainment and culinary experiences, potentially aiding in areas such as weight management, sensory testing, online shopping, and even physical rehabilitation. According to the team, the gadget could enable individuals to partake in “virtual food adventures,” enhancing social interaction and connectivity in our increasingly digital world.

Marianna Obrist, a professor of multisensory interfaces at University College London who was not involved in the study, praised the development. “Taste stimulation is a particularly challenging area, yet the authors seem to present a compelling integration of taste sensations to enrich digital experiences,” Obrist noted, highlighting the significance of the research team's achievements in overcoming long-standing hurdles in the field of taste replication.

The system, while promising, requires further development to fully realise its capabilities and to address challenges in reliably delivering varied taste sensations, as highlighted by the researchers. As technology continues to advance, the possibility of experiencing flavours from afar may soon be within reach, potentially changing how we interact with food and each other in a digital landscape.

Source: [Noah Wire Services](https://www.noahwire.com)

## References

* <https://sensorytesting.osu.edu/home> - This URL supports the involvement of Ohio State University in sensory and consumer testing, which aligns with the development of the e-Taste device for enhancing sensory experiences.
* <https://www.osu.edu/> - This is the main website of Ohio State University, where the e-Taste device was developed, highlighting the institution's role in innovative research.
* <https://www.ucl.ac.uk/> - This URL is related to University College London, where Marianna Obrist, a professor of multisensory interfaces, provided insights on the e-Taste technology.
* <https://advances.sciencemag.org/> - This is the website for Science Advances, the journal where the e-Taste technology was detailed, indicating the scientific validation of the research.
* <https://www.noahwire.com> - This URL is the source of the article discussing the e-Taste device, providing an overview of its capabilities and potential applications.
* <https://www.vrfirst.com/> - Although not directly mentioned in the article, this URL represents a resource for virtual reality advancements, which could be enhanced by the e-Taste technology.