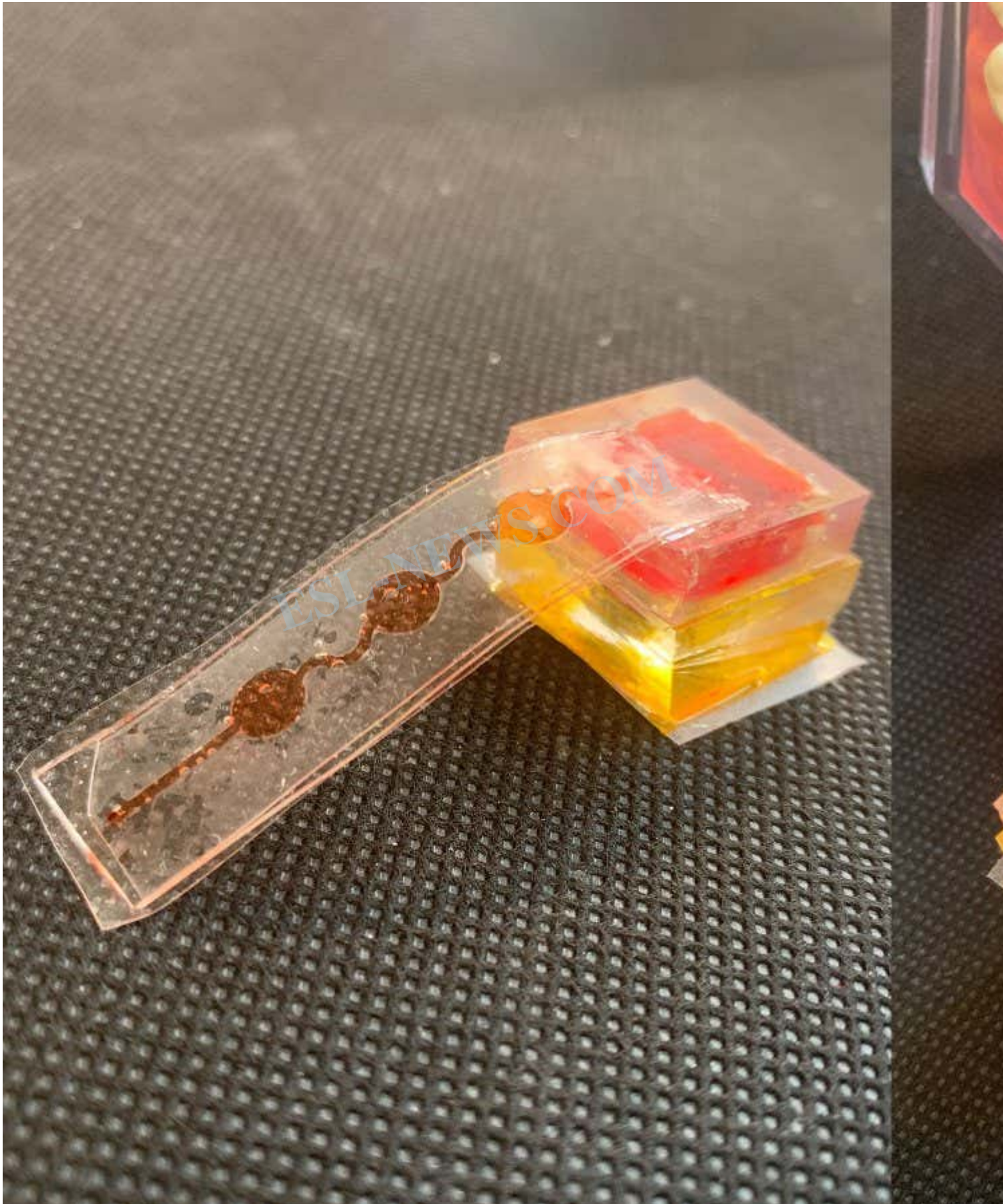




Virtual reality cake tasting with electronic tongue

Description

ESL-NEWS.COM





An e-Taste system has been developed by Yizhen Jia and his team at The Ohio State University. This electronic tongue can mimic flavors like cake and fish soup. However, it currently cannot reproduce other factors that affect taste, such as smell.

The e-Taste system uses chemicals representing the five basic tastes: salty, sour, sweet, bitter, and umami. By detecting these chemicals in food, converting them into digital readings, and then delivering flavor-containing hydrogels through a tube under the tongue, the system can partially recreate a food's flavor in the mouth.

In tests, the device successfully reproduced single flavors and more complex tastes like lemonade, cake, fried egg, fish soup, and coffee. However, Alan Chalmers from the University of Warwick notes that taste is not solely determined by flavors but also by other senses like smell and sight. For example, a strawberry tastes sweet because of its aroma and color, even though it is sour.

While the e-Taste system can measure sweetness and sourness, it cannot replicate taste as perceived by the human tongue. This highlights the complexity of taste perception involving multiple senses.

Source: [The Ohio State University](#) & [University of Warwick](#)

Vocabulary List:

1. **Hydrogels** /'haɪ.drəʊ.dʒel/ (noun): A gel that contains a significant amount of water used in various applications including flavor delivery.
2. **Reproduce** /,ri:.prə'dju:s/ (verb): To produce or create something again or anew.
3. **Flavor** /'fleɪ.vər/ (noun): A distinctive taste of a substance especially food or drink.
4. **Perception** /pər'sɛp.ʃən/ (noun): The process of becoming aware of something through the senses.
5. **Senses** /'sɛn.sɪz/ (noun): The physiological capacities of organisms that allow them to receive and process stimuli.
6. **Complexity** /kəm'plek.sɪ.ti/ (noun): The state or quality of being intricate or complicated.

Comprehension Questions

Multiple Choice

1. Who developed the e-Taste system?

- Option: Yizhen Jia and his team at The Ohio State University
Option: Alan Chalmers from the University of Warwick
Option: Ratan Naval Tata and his team at Tata Group



Option: Elon Musk at SpaceX

2. Which of the following tastes are represented by chemicals in the e-Taste system?

Option: Salty, sour, spicy, umami

Option: Sweet, bitter, savory, creamy

Option: Sour, bitter, umami, cheesy

Option: Salty, sour, sweet, bitter, umami

3. According to the content, what aspect of taste cannot the e-Taste system replicate?

Option: Color perception

Option: Smell

Option: Sound

Option: Touch

4. Which of the following complex tastes were successfully reproduced by the e-Taste system in tests?

Option: Lemonade and orange juice

Option: Tea and coffee

Option: Fried chicken and steak

Option: Fish soup and coffee

5. Why does a strawberry taste sweet even though it is sour?

Option: Due to its color

Option: Due to its size

Option: Due to its texture

Option: Due to its aroma and color

6. What senses, in addition to taste, are mentioned to influence the perception of flavor?

Option: Hearing and touch

Option: Smell and sight

Option: Balance and proprioception

Option: Temperature and pressure

True-False

7. The e-Taste system can perfectly replicate taste perceptions as experienced by the human tongue.

8. The e-Taste system was developed by Alan Chalmers.



-
9. The e-Taste system uses chemicals to represent the five basic tastes.
10. Taste perception involves only the sense of taste, according to Alan Chalmers.
11. The e-Taste system delivers flavor-containing hydrogels through a tube under the nose.
12. The taste of a food is solely determined by its flavor components.

Gap-Fill

13. The e-Taste system can mimic flavors like cake and fish soup, but it cannot reproduce other factors that affect taste, such as _____.
14. The e-Taste system was developed by Yizhen Jia and his team at The Ohio State University to partially recreate a food's flavor in the _____.
15. In tests, the e-Taste system successfully reproduced tastes like lemonade, cake, fried egg, fish soup, and _____.
16. According to the content, taste perception involves multiple _____.
17. The e-Taste system can measure sweetness and _____.
18. The complexity of taste perception is highlighted due to the involvement of multiple _____.

Answer

Multiple Choice: 1. Yizhen Jia and his team at The Ohio State University 2. Salty, sour, sweet, bitter, umami 3. Smell 4. Fish soup and coffee 5. Due to its aroma and color 6. Smell and sight

True-False: 7. False 8. False 9. True 10. False 11. False 12. False

Gap-Fill: 13. smell 14. mouth 15. coffee 16. senses 17. sourness

Vocabulary quizzes



Multiple Choice (Select the Correct answer for each question.)

1. What term refers to the vast expanses of outer space?
Option: A) Geographical
Option: B) Cosmic
Option: C) Biological
Option: D) Technological
2. Which term describes the process of creating offspring or making copies?
Option: A) Geological
Option: B) Encounter
Option: C) Reproduce
Option: D) Hydrogels
3. What term refers to a serious disagreement or argument?
Option: A) Interference
Option: B) Encounter
Option: C) Conflict
Option: D) Perception
4. Which term describes the process of gradual development or change?
Option: A) Advancements
Option: B) Resolution
Option: C) Adaptations
Option: D) Evolution
5. What term refers to the refusal to accept or comply with something?
Option: A) Temporarily
Option: B) Complexity
Option: C) Resistance
Option: D) Permanence
6. Which term refers to treatments for medical conditions?
Option: A) Breakthrough
Option: B) Sabotage
Option: C) Therapies
Option: D) Directive
7. What term describes improvements or developments?
Option: A) Obscured
Option: B) Pattern
Option: C) Advancements



Option: D) Utilizes

8. Which term is related to the study of shapes and spaces?

- Option: A) Encounter
Option: B) Complexity
Option: C) Geometry
Option: D) Hydrogels

9. What term means to bring about a complete change in a significant way?

- Option: A) Meet
Option: B) Challenge
Option: C) Revolutionize
Option: D) Repeat

10. Which term means capable of working successfully or feasible?

- Option: A) Geological
Option: B) Encounter
Option: C) Viable
Option: D) Perception

Gap-Fill (Fill in the blanks with the correct word from the vocabulary list.)

11. _____ features are related to processes occurring within the Earth.
12. Proper _____ is essential for the smooth functioning of any organization.
13. The repeated arrangement of elements forms a recognizable _____.
14. The manager issued a clear _____ to all employees regarding the new policy.
15. _____ are the working parts or steps that make something function.
16. The unique _____ of the dish came from the blend of spices used.
17. The _____ of the situation required a thorough analysis to understand.
18. During their _____ with the new species the researchers noted unique behaviors.
19. The new technology _____ the latest advancements in artificial intelligence.
20. One's _____ of a situation can greatly impact their response.



Matching Sentences (Match each definition to the correct word from the vocabulary list.)

21. The dense fog the view of the mountains making it difficult to see them clearly.
22. Her grandfather's passion for music greatly her own musical tastes.
23. are a type of materials with high water content often used in medical applications.
24. The five include sight hearing touch taste and smell.
25. The scientific team made a major in cancer research leading to new treatment possibilities.
26. There are millions of different on Earth each with its unique characteristics.
27. The bird's to cold environments include growing thicker feathers for insulation.
28. The spy attempted to the enemy's communication system to hinder their operations.
29. The company issued a new safety outlining emergency procedures for all employees.
30. The store closed for renovations but reopened with a new look.

Answer

Multiple Choice: 1. B) Cosmic 2. C) Reproduce 3. C) Conflict 4. D) Evolution 5. C) Resistance 6. C) Therapies 7. C) Advancements 8. C) Geometry 9. C) Revolutionize 10. C) Viable

Gap-Fill: 11. Geological 12. Administration 13. Pattern 14. Directive 15. Mechanisms 16. Flavor 17. Complexity 18. Encounter 19. Utilizes 20. Perception

Matching sentence: 1. Obscured 2. Influenced 3. Hydrogels 4. Senses 5. Breakthrough 6. Species 7. Adaptations 8. Sabotage 9. Directive 10. Temporarily

CATEGORY

1. Sci/Tech - LEVEL3

Date Created

2025/03/02

Author

aimeeyoung99