[DESCRIPTION]
[Title]
INFORMATION PROCESSING DEVICE, INFORMATION PROCESSING METHOD, COOKING ROBOT, COOKING METHOD, AND COOKING EQUIPMENT

[Technical Field]
[0001]
The present technology particularly relates to an information processing device, an information processing method, a cooking robot, a cooking method, and cooking equipment capable of generating a new recipe.

[Background Art]
[0002]
There are services of making cooking recipes available. A user can search for a favorite recipe by browsing through categories or inputting the name of a food ingredient as a keyword.
[0003]
For example, chefs at restaurants are required to not only provide the same dishes according to existing recipes but also create new recipes by devising food ingredients, cooking methods, food presentation methods, and the like.

[Citation List]
[Patent Literature]
[0004]
[PTL 1]
Japanese Translation of PCT Application No. 2017-506169
[PTL 2]
Japanese Translation of PCT Application No. 2017-536247

[Summary]
[Technical Problem]
[0005]
It is not easy to continuously create new recipes due to the perpetuation of fixed ideas according to common practice, culture, and the like in cooking or a fixed ideas based on experiences.
[0006]
Embodiments of the present invention are made in view of such a situation, and make it possible to create a new recipe.

[Solution to Problem]
[0007]
According to a first aspect of the present invention, there is provided an information processing device including a recipe generation unit configured to generate a new recipe on the basis of chemical structure information representing chemical structures of food ingredients used for cooking, sensing information obtained by measuring flavors of food ingredients using a sensor, and flavor subjective information representing subjective evaluation of people with respect to flavors of food ingredients, wherein the recipe generation unit generates the new recipe using food ingredients included in a combination of food ingredients selected on the basis of chemical structures represented by the chemical structure information, the chemical structure information being determined from flavor subjective information designated by a user performing a predetermined operation on the information processing device and a function to transform the flavor subjective information to the chemical structure information, and the selected combination of food ingredients having a chemical structure closest to a chemical structure of the chemical structure information in a chemical structure space.
[0007a]
According to a second aspect of the present invention, there is provided an information processing method, using an information processing device, including: generating a new recipe on the basis of chemical structure information representing chemical structures of food ingredients used for cooking, sensing information obtained by measuring flavors of food ingredients using a sensor, and flavor subjective information representing subjective evaluation of people with respect to flavors of food ingredients, wherein the new recipe is generated using food ingredients included in a combination of food ingredients selected on the basis of chemical structures represented by the chemical structure information, the chemical structure information being determined from flavor subjective information designated by a user performing a predetermined operation on the information processing device and a function to transform the flavor subjective information to the chemical structure information, and the selected combination of food ingredients having a chemical structure closest to a chemical structure of the chemical structure information in a chemical structure space.
[0008]
Disclosed herein are cooking robot and cooking equipment that include a control unit configured to perform cooking on the basis of recipe data representing a new recipe generated on the basis of chemical structure information representing chemical structures of food ingredients used for cooking, sensing information obtained by measuring flavors of food ingredients using a sensor, and flavor subjective information representing subjective evaluation of people with respect to flavors of food ingredients.

[Brief Description of Drawings]
[0009]
[Fig. 1]
Fig. 1 is a diagram illustrating an example of presentation of a recipe by an information processing device according to an embodiment of the present technology.
[Fig. 2]
Fig. 2 is a diagram illustrating an example of components of a flavor.
[Fig. 3]
Fig. 3 is a diagram illustrating an example of a screen used to designate a flavor.
[Fig. 4]
Fig. 4 is a diagram illustrating an example of databases used for generation of a recipe.
[Fig. 5]
Fig. 5 is a diagram illustrating an example of information stored in a flavor subjective information DB.
[Fig. 6]
Fig. 6 is a diagram illustrating an example of information stored in a sensing information DB.
[Fig. 7]
Fig. 7 is a diagram illustrating an example of information stored in a chemical structure information DB.
[Fig. 8]
Fig. 8 is a diagram showing relations between databases.
[Fig. 9]
Fig. 9 is a diagram showing relations between databases.
[Fig. 10]
Fig. 10 is a diagram illustrating an example of generating a new recipe.
[Fig. 11]

CLAIMS

1. An information processing device comprising a recipe generation unit configured to generate a new recipe on the basis of chemical structure information representing chemical structures of food ingredients used for cooking, sensing information obtained by measuring flavors of food ingredients using a sensor, and flavor subjective information representing subjective evaluation of people with respect to flavors of food ingredients,

wherein the recipe generation unit generates the new recipe using food ingredients included in a combination of food ingredients selected on the basis of chemical structures represented by the chemical structure information, the chemical structure information being determined from flavor subjective information designated by a user performing a predetermined operation on the information processing device and a function to transform the flavor subjective information to the chemical structure information, and the selected combination of food ingredients having a chemical structure closest to a chemical structure of the chemical structure information in a chemical structure space.

2. The information processing device according to claim 1, wherein the recipe generation unit generates the new recipe on the basis of transformation information representing mutual relations between the chemical structure information, the sensing information, and the flavor subjective information with respect to the same food ingredient.

3. The information processing device according to claim 1, wherein each of the chemical structure information, the sensing information, and the flavor subjective information is represented by a vector having a plurality of items as elements.

4. The information processing device according to claim 3, wherein the recipe generation unit selects a combination of food ingredients by performing a vector operation of multiplying a vector forming chemical structure information of each food ingredient by a coefficient corresponding to a combination amount of each food ingredient.

5. The information processing device according to claim 1, wherein the chemical structure information is information obtained by measuring chemical structures of food ingredients using an analyzer.

6. The information processing device according to claim 1, wherein the sensing information is information obtained by measuring flavors of food ingredients using a flavor measuring instrument.

7. The information processing device according to claim 1, wherein the flavor subjective information is information representing a subjective evaluation value of a flavor from a person who ate a food ingredient.

8. An information processing method, using an information processing device, comprising:

generating a new recipe on the basis of chemical structure information representing chemical structures of food ingredients used for cooking, sensing information obtained by measuring flavors of food ingredients using a sensor, and flavor subjective information representing subjective evaluation of people with respect to flavors of food ingredients,

wherein the new recipe is generated using food ingredients included in a combination of food ingredients selected on the basis of chemical structures represented by the chemical structure information, the chemical structure information being determined from flavor subjective information designated by a user performing a predetermined operation on the information processing device and a function to transform the flavor subjective information to the chemical structure information, and the selected combination of food ingredients having a chemical structure closest to a chemical structure of the chemical structure information in a chemical structure space.