

Rulo Slices Puzzle - Patent Application - Description

Title of Invention

1. Rulo Slices Puzzle

Applicant

2. Rulo Corporation Pte Ltd (incorporated in Singapore)

Inventor

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Technical Field

5. Recreation and entertainment

Technical Problem

6. The puzzle consists of a 3-dimensional ($n \times n \times n$) cubic grid of colored cubes. Cubes are initially grouped by color in ($n \times n$) sections of the grid.
7. The cubes can be moved by selecting any ($n \times n$) groups ("slices") and pushing them, with cubes leaving the grid, rejoining at the opposite side. The objective of the puzzle is to restore all the cubes into their original colored sections, after an initial shuffle.
8. The examples shown in this application utilize a $3 \times 3 \times 3$ grid, with three sections and colours. Other dimensions are also possible.

Technical Solution and mechanics

9. The puzzle is delivered in the form of a computer application ("app"). This can be deployed on smartphones, tablets, personal computers, or other forms of computing platforms.
10. The initial set up, the cubes are grouped together by colour in sections within the grid. [\[See Figure 1 - Initial set up\]](#)
11. Movements can be controlled via touch gestures on a touch screen, mouse movements, stylus control, or other interface options based on the devices being deployed.
12. A ($n \times n$) group of cubes ("slice") can be selected by touching one of the cubes in the grid. Alternate slices in a different direction can be selected by touching again. [\[See Figure 2 - Selection of group \("slice"\)\]](#)

13. The slice can then be pushed (or “poked”), shifting all the cubes along their plane. [\[See Figure 3 - Pushing the group \(“slice”\)\]](#).
14. As cubes are pushed out of the grid, they are added back on the opposite side. [\[See Figure 4 - Wrap around of group \(“slice”\)\]](#)
15. The slice can similarly be pulled (or “popped”) in the opposite direction.
16. The cubes in the grid can thus be shuffled by executing several pushes or pulls across various slices in the grid. This can be done manually, or by computer random algorithm.
17. The player should then try and restore the colors to their original positions in order to solve the puzzle.
18. A timer and a move counter keep track of how long one has been on the current puzzle, and how many moves one has taken.
19. The app can allow automated instant reset, or automated rewind of all moves to restore the original grid.
20. The puzzle can be set to use different numbers of cubes in the grid via the “Settings” control on the app.
21. Rather than using colors, cubes can be denominated using other identifiers, e.g. numbers, letters or symbols.

Advantageous Effects of Invention

22. The puzzle is for recreation purposes, and is intended to test a person’s logical and puzzle solving abilities

Claims

1. A puzzle, comprising of:
 - a. colored cubes, arranged in 3 dimensional cubic grid and initial organised in several groups each of the same color;
 - b. a movement mechanism to select and shuffle the cubes; and
 - c. a target success state of restoring the cubes to their original configuration.
2. A movement mechanism to shuffle the cubes, comprising of:
 - a. Selection of a group of cubes within a single plane within the grid;
 - b. An ability to move the group in or out, with cubes that leave the grid rejoining on the opposite side; and
 - c. repeat of the above steps multiple times in sequence.
3. Variations of the puzzle, including:
 - a. alternate mechanics to select and move the cubes dependant on the computing platform used;
 - b. different dimensions for the grid;
 - c. alternate means of identifying the groups of cubes, other than colour.