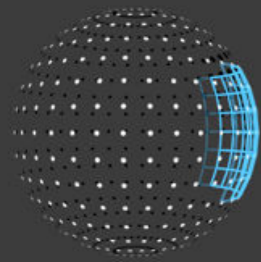


NELI-AUTH: Authentication System Based on Non-equal-length Input for Virtual Environment

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Encoding

The sphere could be divided into twelve areas. In the vertical direction, there are three levels: Upper, Middle, and Lower. In each horizontal level, there are four positions: front, back, left, and right.



Left figure shows the middle-right(MR) area of the sphere.

The design includes a series of symbols to represent different areas in the space:



A password string should contain multiple items. An item can contain as few as one element or as many as three elements.

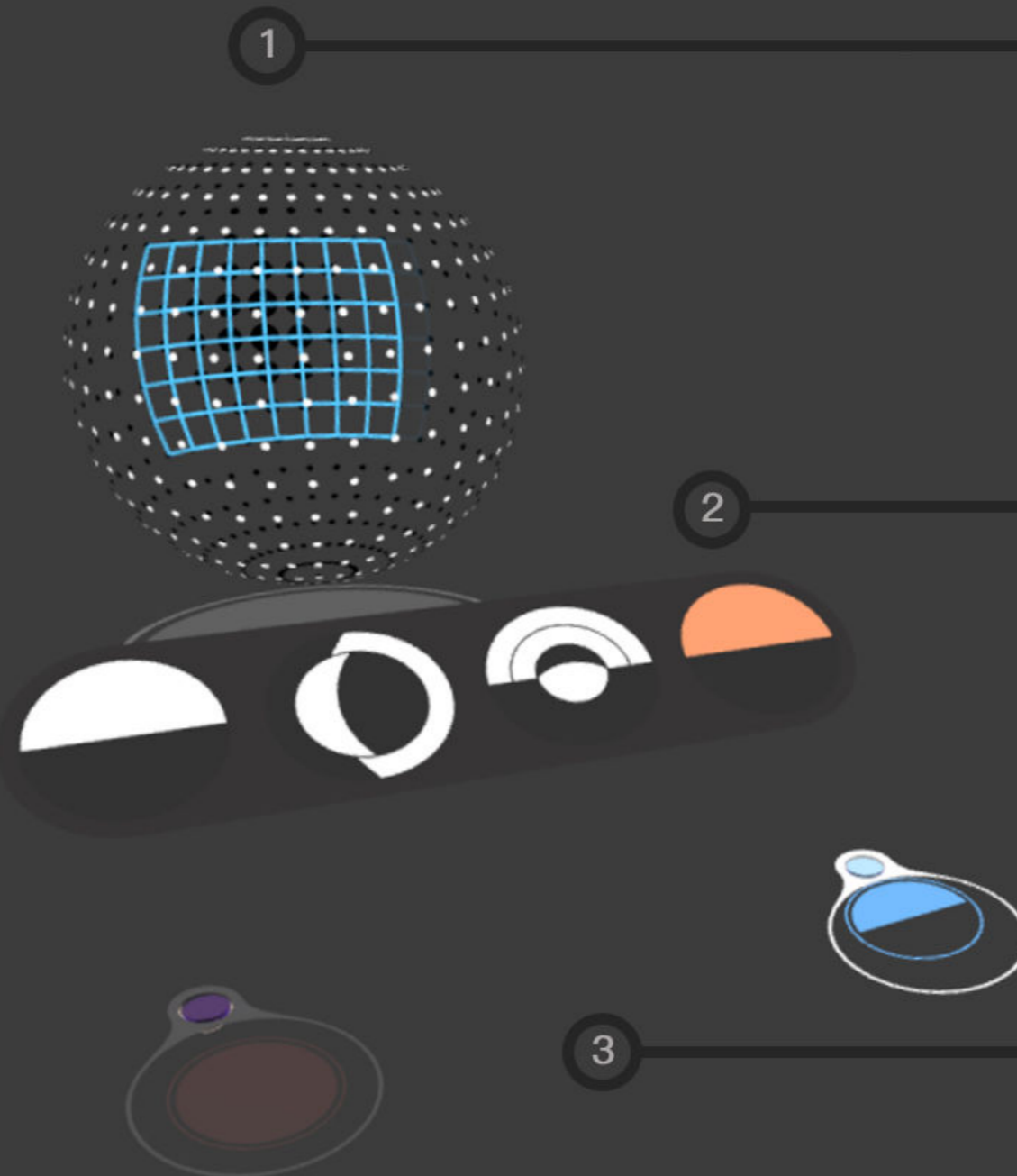


Through different segmentation, the same operation that can be observed can also generate different password strings (as shown in the figure 2 below).



This is None-Equal-Length Input.

Interface



Visual Sphere

The visual sphere shows the element currently being input. Many tiles are used to form a spherical area, and the rotation of the sphere helps users to recognize the three-dimensional sphere in VR.

Password Box

The password box shows the currently inputting item and the items being entered



From the interior to the exterior, an item's constituent elements are represented by 1-3 concentric circles. For example, the left figure shows the item coded LR-MF-ML.

Controller Agency

