Stater 360²

Overview

Stater 360² is an interactive installation that supports exploring artifacts through physical and multitouch interaction with a **double rotating gimbal** (i.e., a non-instrumented disk that can dynamically rotate around two axes). While the user manipulates the disk, the system uses a projector to visualize a display upon it. A depth camera is used to estimate the pose of the surface and multiple simultaneous fingertip contacts upon it. The estimates are transformed into meaningful user input, availing both fingertip contact and disk pose information.

Besides the provision of **augmented multitouch interaction**, such an achievement can serve two distinct functions. On one hand, the rotation mechanism can be used as a means for easily and intuitively browsing and interacting with alternative, dynamically changing, projection views. On the other hand, the high flexibility and extensive range of projection poses supported by the system can be used in order to dynamically personalize the physical properties of an interactive projection surface to the ergonomic preferences and needs of users.

Except the disk, a secondary projection surface is also supported for providing additional information. Multitouch gestures are also supported on this surface.

Two different applications are currently available for the system: (a) Stater 360² coin and (b) Stater 360² artifact.

a. Stater 360² coin

On the disk a collection of coins is presented. If a user rotates the disk, the coins slide and collide following the disk's motion and tilt, as if they were real objects. When a coin is selected it grows until it covers the whole disk's surface. The user can access the other side of the coin simply by rotating it. Furthermore, by touching the coins surface, a menu offering four choices becomes available around the user's finger:

1. *Magnify*: a magnifying glass appears that can be freely dragged over the coin's surface, also allowing the user to adjust the magnification level.

2. *Map*: a map is unfolded on the disk, on which the coin's

Stater 360² coin

Stater360²

Touching the disk's surface

place of origin is highlighted.

3. *Info*: textual information about the current side of the coin is presented.

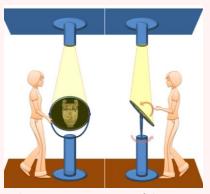4. *Shrink*: the coin shrinks back to its original size, revealing again the whole collection.

On the secondary projection surface detailed information about the coin's place of origin is offered, along with buttons for language selection.

b. Stater 360² artifact

The application supports the exploration of artifacts in 360°. In the application, a photograph of the artifact is projected on the surface of the metal disk, as can be seen from the angle that the metal disk is rotated. By rotating the disk around the vertical axis, the user can see 360 different views of the artifact, as if the actual object was placed behind the disks surface, thus creating a 3D visualization effect. By tilting the disk surface, the user can access alternative lighting settings, revealing different details of the artifact. When the user touches the metal surface, hotspot areas of the current view are presented. Upon touching a hotspot, related information is presented. Additionally, using two fingers, the user can access a magnifying glass.

Accessing details about a hotspot

Schematic representation of the system

Target Applications

Stater 360² is particularly suited for presenting coin collections and 3D objects ranging from ancient artifacts (e.g., in a museum) to precious items (e.g., in a jewelry shop). It allows its users to experience items in a unique way, freely manipulate them and access a very high level of detail.

Additional Information

Permanent public installations:
- ALPHA BANK – CULTURE store, Athens
- Infopoint, Tourism Office, Heraklion

Temporary public installations:
- "The Europe of Greece: Colonies and Coins from the Alpha Bank Collection" at the Archaeological Museum of Thessaloniki

Stater 360² web page
www.ics.forth.gr/ami/project/360/

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