

ICS-FORTH develops and deploys innovative human-centred Ambient Intelligence technologies for Smart Environments, capable of understanding and catering for personalized requirements.

The development of such systems is carried out in the context of the ICS-FORTH Ambient Intelligence Programme, which constitutes a platform for interdisciplinary and cross-thematic RTD.

Application domains include: Arts and Culture, Commerce and Marketing, Learning and Education, Leisure and Entertainment, Healthcare, Home, Office.



Ambient Intelligence Environments

Smart Exhibit Showcase



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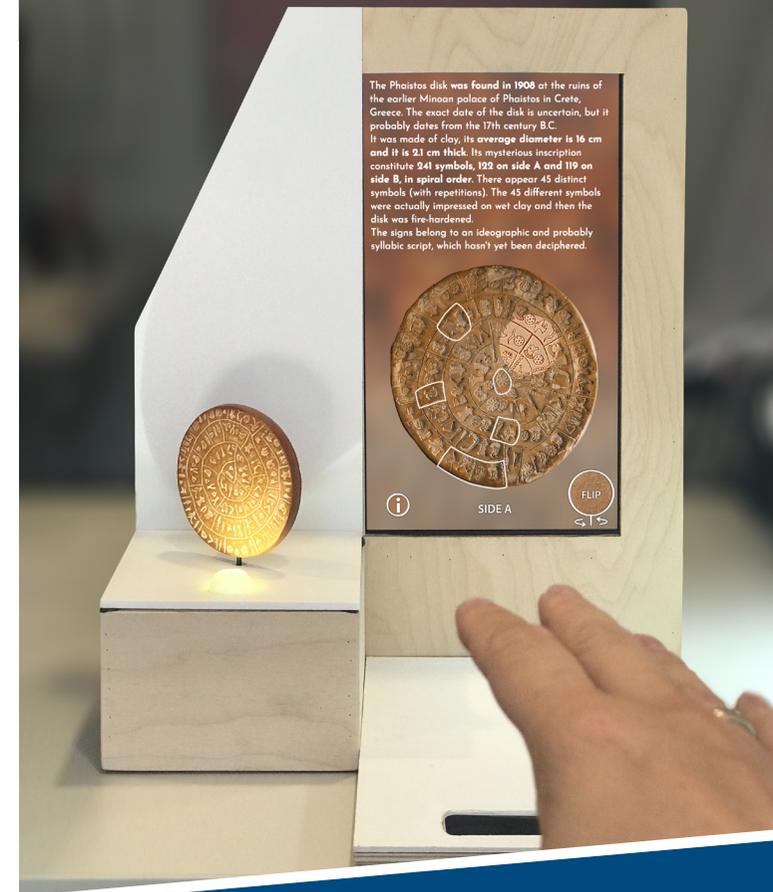
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The Phaistos disk was found in 1908 at the ruins of the earlier Minoan palace of Phaistos in Crete, Greece. The exact date of the disk is uncertain, but it probably dates from the 17th century B.C. It was made of clay, its average diameter is 16 cm and it is 2.1 cm thick. Its mysterious inscription constitute 241 symbols, 122 on side A and 119 on side B, in spiral order. There appear 45 distinct symbols (with repetitions). The 45 different symbols were actually impressed on wet clay and then the disk was fire-hardened. The signs belong to an ideographic and probably syllabic script, which hasn't yet been deciphered.

SIDE A



Smart Exhibit Showcase

The *Smart Exhibit Showcase* constitutes a case (box) that digitally augments physical artifacts/objects of various sizes. It aims to transform the exploration of a static physical artifact into an interactive and fun experience, by applying an innovative interaction paradigm and a theatrical-like approach that employs light, sounds and motion to highlight points of interest of the artifact in display that merit user attention.



The *Showcase* consists of a screen, a rotation motor, a LEAP motion sensor, LED lighting and an optional protective glass enclosure. The physical artifact is placed on the rotation motor, while its digital counterpart, featuring information hotspots, is presented on the adjacent screen. Users can interact with the digital exhibit using mid-air hand gestures, in order to select any of the available hotspots and get additional information (e.g. extended description, images, videos, audio clips). Moreover, users can rotate the physical artifact in order to study the hotspots that belong to currently non-visible side(s).

Exploration Modes

Structured navigation: users can either browse across hotspots or follow predefined navigation routes (similar to a slideshow) that highlight items in a certain order to illustrate their importance/relevance/relationship.

Free exploration: besides hotspots, alternative views of the artifact are supported (e.g. restored or artistic representations, schematics). Users can freely explore the artifact, select any point to focus on, and view its alternative representation.

Interaction Modalities

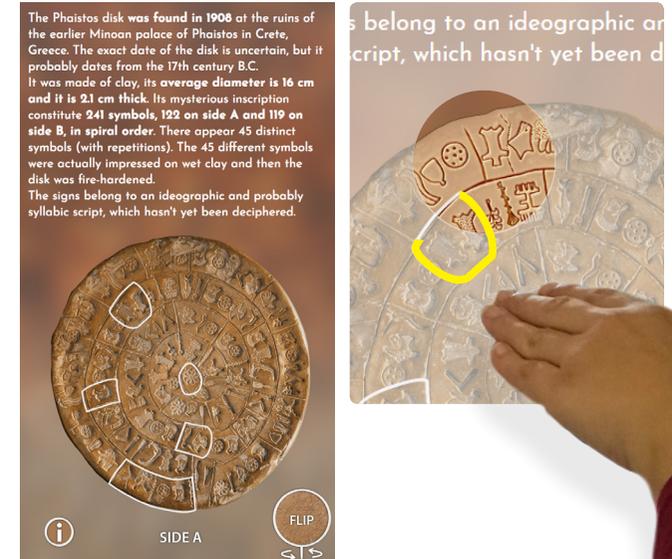
Virtual pointer: users can control the interface by hovering their hand over the embedded sensor. A virtual cursor enables them to focus on and select areas of interest.

Physical artifact manipulation: users can manipulate the physical artifact (e.g. rotate) via appropriate mid-air gestures such as palm tilt, finger pinch, and hand swipe.



Showcase Facilities

- Ambient colored light(s)
- Fine stepper motor to accommodate 360° rotation
- Optional glass enclosure for enhanced protection of the physical artifact
- Casing design that can support multiple themes / skins
- 3D-printed dock creating the impression that the artifact is floating over the surface



Highlights

- Digital augmentation of physical artifacts
- Various digital representations of an exhibit (e.g. line-drawing, artistic restoration, 3D animation)
- Emphasis on Points of Interest through hotspots on the digital artifact
- Discover the artifact's story via pre-defined "routes"
- 360° rotation of physical artifact and its digital counterpart
- Mixed physical and digital animations (e.g. lights and 3D objects)
- Playful interaction
- Customizable digital content and physical casing