Web Augmented Reality applied to Cultural Heritage

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data and systems intelligence

CONCEPTS

WEB ▶ cross-platform no installations

AUGMENTED REALITY (AR) ▶ virtual objects overlaid the real world

MOTIVATION

allows for an accessible and cross-platform solution for enhacing the visiting experiences without interfering with the site

▲

APPLIED TO CULTURAL HERITAGE

OBJECTIVES

1. provide research on Web Augmented Reality
2. develop a Web based Augmented Reality application for a Cultural Heritage site, namely Monte dos Castelinhos

1 WEB AUGMENTED REALITY

PROS

accessibility
- does not require installation;
- integrated text-to speach, translation and text search

cross-platform
- runs on different devices, with different OS

CONS

memory
- memory is limited and browsers accumulate a lot of resources

needs internet connection

usability
- web has additional UI elements

WEB AR FRAMEWORKS

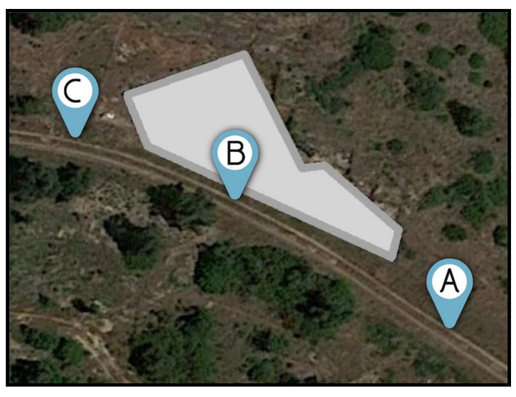
	FEATURES	COMPATIBILITY
ARKit	Passive Infrared Markers, Intertial Sensors	Safari
ARCore	Passive Infrared Markers, Intertial, Geolocation and Magnetic Sensors	Google Chrome, Opera, Samsung Internet
babylon.js	Passive Infrared Markers Intertial, Geolocation and Magnetic Sensors	Google Chrome, Opera, Samsung Internet
AR.js	Passive Markers, Natural Markers, Geolocation Sensors	Google Chrome, Opera, Samsung Internet, Mi, Firefox, Safari, Edge
MindAR	Natural Markers	Google Chrome, Opera, Samsung Internet, Mi, Firefox, Safari, Edge

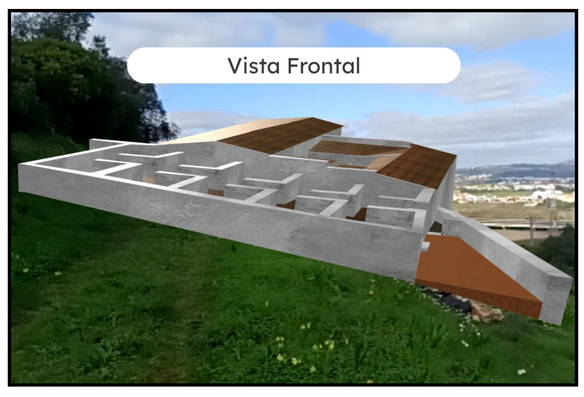
2 WEB AR APPLICATION

Monte dos Castelinhos is an archeological site in Castanheira do Ribatejo, with remains of a Roman settlement from the 1st century BC. It was created a Web application for this site containing AR and VR components using AR.js and A-Frame.

APP

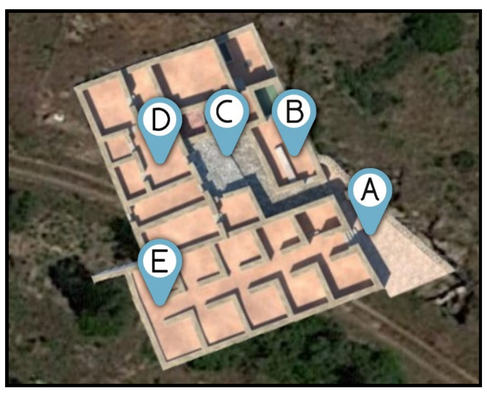
AUGMENTED REALITY

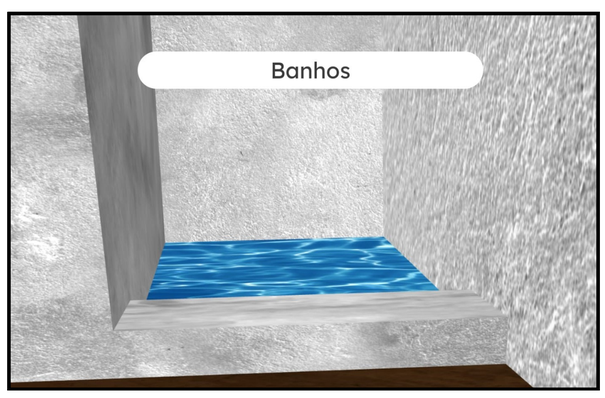




contains three viewpoints where the model can be viewed superimposed on the ruins

VIRTUAL REALITY





contains five viewpoints where the model can be seen in a 360º view

CONCLUSION

Web AR and VR are still in their initial phases, with improvements and the emergence of new frameworks being expected in the next years. The complexity of this project, be it in precision of alignment, to the complexity of the models, to storage, highlighted the need for these improvements. Nonetheless, **Web AR technologies are still capable of employing solid experiences, with various features, that are accessible and cross-platform**.

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AR POSTER