

Building a virtual cartographic museum

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Abstract:

The general argument for creating and using virtual environments over real environments is that the building process of virtual environments is less expensive and not constrained by physics & location. Furthermore, virtual environments need not be antagonistic to their real counterparts - in fact, they can serve as complementaries. One such example involves virtual museums. If the subjects to be displayed are digitized properly, they can be shown in the digital form; this may provide accessibility to those geographically distant from the real museum, or as a means to propel tourism and renown of the real museum destination.

Virtual cartographic museum can be thought of as a specific type of a virtual museum, given the subject of the exhibit. Critically, one needs to raise the question: what constitutes a (virtual) cartographic museum? In narrow terms, this can be understood as an exhibit of old maps and the mapping process from a specific period or place; in broader terms, it is made of everything related - i.e., every historical event and reality that contributed to the change and development of a predefined geographic area or a subject that is the interest of one's focus.

As per 2021, the technology to create virtual cartographic museums (e.g., virtual reality, programmable 3D engines, advanced forms of human-computer interaction) is readily available, and the scope of this submission is to utilize this and to describe the ways to create such a museum. This is accompanied with concrete examples of a low-cost virtual cartographic museum we built: a set of industrial buildings composed of premade 3D objects that tie in together to a museum environment; the structure, logic, and navigation of the environment; the historic cartographic map sources, that have been adjusted for a virtual presentation; the accompanying texts and interactive elements; and finally, the controls that allow for satisfying user experience while exploring the museum.

The example virtual museum was built using free software: Unity engine and its freely available assets. The accessibility aspect of this is also of note, as the end-product application created in the Unity engine can target various platforms - be it VR headsets, PC, mobile, etc.