

Augmented Reality Using Cuboid Tracking as a Support for Early Stages of Architectural Design

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Abstract : Augmented Reality (AR) alters the elaboration of the architectural project, which relates to project cognition: representation, visualization, and perception of information. Understanding these features from the earliest stages of the design can facilitate the study of relationships, zoning, and overall dimensions of the forms. This paper's goal was to explore a new approach for information visualization during the early stages of architectural design using Augmented Reality (AR). A three-dimensional marker inspired by the Rubik's Cube was developed, and its performance, evaluated. This investigation interweaves the acquired knowledge of traditional briefing methods and contemporary technology. We considered the concept of patterns (Alexander et al. 1977) to outline geometric forms and associations using visual programming. The Design Science Research was applied to develop the study. An SDK was used in a game engine to generate the AR app. The tool's functionality was assessed by verifying the readability and precision of the reconfigurable 3D marker. The results indicated an inconsistent response. To use AR in the early stages of architectural design the system must provide consistent information and appropriate feedback. Nevertheless, we conclude that our framework sets the ground for looking deep into AR tools for briefing design.

Keywords : augmented reality, cuboid marker, early design stages, graphic representation, patterns

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