

Smart Textiles as hybrid interactive materials A responsive behaviour towards transformable surfaces

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Abstract:

Finding ingenious solutions in interior spaces is the result of capability and scalability of the designer in reshaping the interior's contents through the use of the materials in the contexts of perception and interpretation. This approach extended to include the concepts of contextual variation into computed responses and ubiquitous integration into architecture. They are also known as Hybrid materials functionally when integrated with high performance intelligent embedded systems as adaptive system property changing or energy exchanging building system energy-saving control through the adaptation of patterns within the digital phase modelling. These materials mimic living organisms in terms of behaviour, in reaction to various environmental impacts and they are known as active, responsive or adaptive materials due to their metamorphic ability to adapt and self-assemble to the environmental surroundings and the requirements of the inhabitants of interior spaces. This research aims to create a framework that provides a strategy for the adaptation of responsive patterns to generate manipulative surfaces of topological richness in spatial variation to enhance environmental performance through passive design. This paper focuses on expressing the interior's identity through computational design and smart materials_ smart textiles in particular_ in a dynamic potential that reflects the diversity of form due to the impact of the emergence of modern trends in design. It changed the shape of interior spaces and gave it incipient interactive responsive properties. Computer design and digital fabrication techniques replaced static forms with living, interactive spaces through smart textile to alter their shape and function. As conclusion, these hybrid formations in design added a new functional dimension. Therefore, the smart materials and responsive proprieties have directly influenced the process of design and architecture, whether it's in the effectiveness of the design or the process of the fabrication and manufacturing of various structures.

Keywords:

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