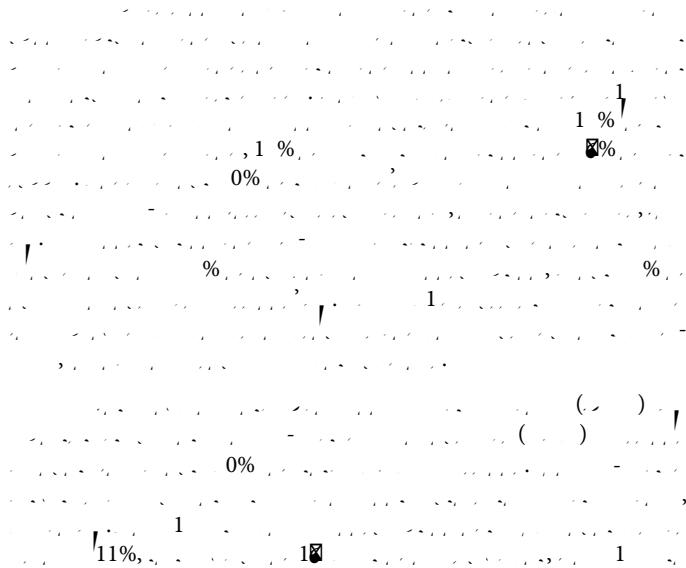


Key words:

Introduction



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the glass surface skin. This paper presents a new approach to the design of intelligent glass surfaces. The proposed system is based on the concept of adaptive glass matter. The system consists of a glass panel with embedded sensors and actuators. The sensors detect the environmental conditions such as temperature, humidity, and light levels. The actuators control the glass panel's properties, such as transmittance and reflectance, in response to the detected conditions. The system can also communicate with other intelligent surfaces and systems to coordinate their actions. The proposed system has the potential to revolutionize the way we design and build intelligent buildings.

Adaptive Surface Performance

The proposed system is designed to provide adaptive performance to the glass panel. The system can change its properties in response to the environment. For example, it can increase its transmittance during the day to allow more light into the building, and decrease it at night to reduce heat loss. It can also change its reflectance to reflect away unwanted solar radiation.

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Cybernetic Behavior

The proposed system is designed to be part of a larger network of intelligent surfaces and systems.

These systems can communicate with each other to coordinate their actions. For example, the glass panel can communicate with other intelligent surfaces to adjust their properties in response to the environment. The system can also communicate with other intelligent systems, such as HVAC systems, to optimize energy use.

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Abstract of intelligent surface skin.

X *Material adaptability* is the ability of a material to change its properties in response to external stimuli. This can be achieved through the use of smart materials, such as piezoelectric polymers or shape-memory alloys, which can change their physical properties in response to temperature, pressure, or electrical stimulation.

Another approach is to use passive adaptive systems, such as double-glazed windows or thermal insulation panels, which can change their performance characteristics in response to environmental conditions. These systems can be designed to provide optimal energy efficiency under different weather conditions, such as during summer or winter.

Material adaptability can also be achieved through the use of sensors and actuators, which can monitor the environment and adjust the properties of a material in real-time to optimize energy performance.

Overall, material adaptability is a key feature of energy adaptive glass matter, as it allows for the creation of more efficient and sustainable building envelopes.

Material Adaptability

Aim: To explore the potential of material adaptability in creating energy-efficient and sustainable building envelopes.

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