Final Scenario Texts

As based upon feedback received in this document.

Self-Shading Facade

Neutral Framing

The Self-Shading Facade is a **recent development** in innovative materials for architecture. Its surface is made up of hundreds of small, curved modules suspended across window frames.

These modules are made of layered materials that bend in response to changing humidity. As humidity rises or falls, the facade's individual elements autonomously curl or flatten, adjusting how much light and heat pass through. The movement is driven by the structure of the materials themselves, without the need for motors or electronics.

This technology contributes to innovative architecture materials and building energy regulation. It is a **functional system** designed using recent advances in materials science.

Bioinspired Framing

The Self-Shading Facade is a recent development in innovative materials for architecture. Its surface is made up of hundreds of small, curved modules suspended across window frames.

These modules are made of layered materials that bend in response to changing humidity. The design **draws inspiration from natural plant structures**, particularly **pine cones**, which open and close in response to humidity. The layers are **inspired by how cellulose fibers are arranged** in these plants to guide the direction of bending.

This technology brings ideas from the natural world into architectural innovation. Its function and movement are **grounded in bioinspired design**.

Sustainable Framing

The Self-Shading Facade is a recent development in innovative materials for architecture. Its surface is made up of hundreds of small, curved modules suspended across window frames.

These modules are made of layered materials that react to humidity changes **without needing external energy**. Their composition helps **reduce reliance on synthetic or carbon-intensive materials**. Because the facade adjusts shading based on weather, it offers a way to **reduce energy use** in buildings.

This technology **supports climate-friendly architectural innovation and resource efficiency**. Its passive, energy-autonomous operation **reflects sustainable design principles**.

Not included in our study:

Soft Walker Robot Texts

Neutral Framing

The Soft Robot Walker is about the size of a large textbook and moves with a slow, deliberate motion. It has six flexible legs and a compact frame, giving it a low, crouched silhouette.

It walks using soft, air-powered legs that bend in multiple directions to move the robot forward. The robot contains no electronics; instead, its movement is **coordinated by internal circuits** that use air pressure to send signals. These circuits and the robot's legs are made from soft materials and are powered by a steady stream of compressed air.

This kind of robot can be used in situations where electronic systems might be dangerous or unreliable, such as areas with high radiation or flammable gases. Its design shows how soft materials and air-based control can **work together to create safe, resilient robots**.

Bioinspired Framing

The Soft Robot Walker is about the size of a large textbook and walks with a slow, deliberate motion reminiscent of an insect. It has six flexible legs and a compact frame, giving it a low, crouched silhouette.

It walks using soft, air-powered legs that bend in multiple directions to move the robot forward. The robot contains no electronics; instead, its movement is coordinated by internal circuits that use air pressure, similar to how fluid systems in animals send signals. This bioinspired design **imitates the stick insect's** natural gait and leg joints, allowing the robot to move in a lifelike and coordinated way.

This kind of robot may be useful in places where living systems offer the best guidance for survival and mobility. By **taking inspiration from biological structures and motions**, it shows how **natural movement principles** can be transferred into soft robotic design.

Sustainable Framing

The Soft Robot Walker is about the size of a large textbook and moves with a slow, deliberate motion. It has six flexible legs and a compact frame, giving it a low, crouched silhouette.

It walks using soft, air-powered legs that bend in multiple directions to move the robot forward. The robot contains no electronics; instead, its movement is coordinated by internal circuits that use air pressure, reducing the need for complex electrical parts. Made primarily from **recyclable materials**, the robot's simple, single-material parts may **support future sustainable design** efforts.

This kind of robot offers possibilities for safer, low-impact operation in sensitive environments. Its electronics-free and **material-efficient design** illustrates how robotics might align with **long-term environmental and energy goals**.