

Categorie Premio Accessibilità Sostenibilità Qualità della vita

Product Name VEIL SOLAR SHADE

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Description of innovation social values

- product category
- formal and functional features
- problems solved by innovation
- user
- field of application

PRODUCT CATEGORY: SUSTAINABILITY

The solar shade was designed to expose and exhibit the technology of solar light harvesting whilst providing a protective shade covering for students from the harsh Australian sun. Current solar collecting solutions hide the solar collecting surfaces on the top of a large overhead structure, cutting the visual link. The broad front face of the Solar Shade blends the usually separated structural planes from vertical to horizontal, drawing the solar cells down the entire length.

The structure is rotated throughout the school day to best suit the position of the sun. Markings around the circular base indicate best time-specific direction for shade in the morning and afternoon. The large handle on the shade allows for smooth rotation by children and adults;

The shade area of the structure is extended by the large sail-cloth awning that extends from the solar panel section, providing a maximum shade area. The Solar Shades can also be arranged in clusters in appropriately sized spaces.

The underside of the shade features a dynamic visual feedback system to instantaneously indicate the quantity of energy currently being collected from the solar panels. Correct solar orientation will generate a positive visual message (LED's glow green), incorrect orientation will indicate the low amount of power collection (LED's glow red).

The overriding goal of the VEIL initiated studio project is to synthesize creative directions for future development funding. The Solar Shade concept was identified as a project that would suitably inspire industry funding for new development. The project has taken an idea developed by VEIL, and turned it into a commercial proposition that they can use to obtain funding for further visionary projects.

Description of technical features

- operations
- technology

The VEIL solar shade is underpinned by the technical functionality of a solar tracker device. This is a device that works on the concept that a solar panel will provide an improvement in solar power production if it follows the angle of the sun from morning to afternoon. As we wanted this to be an educational device, we intend to make the structure interactive by requiring the students to facilitate this solar tracking behaviour and rotate the shade in the morning and in the afternoon to best receive light.

The other conceived function of the device was to allow it to provide feedback and encouragement for the students to do this re-orientation. We have currently proposed that this would be done by creating a playful LED light feedback on the underside of the shade's structure. As mentioned elsewhere, it would glow in a full green pattern when it is producing full power, and a lesser red pattern when not producing power.

We have also considered how the structure would deliver its power, whether it would be via underground powerline directly to the grid, or to a portable power storage unit for local delivery in isolated locations. The final outcome of this will be devised in the development process.

The type of photovoltaic (Solar) panel technology that forms the face of the solar shade has not yet been locked into the design.

Dimensions

Height: 3.5m
Depth: 3.9m
Width: 3.4m

Materials

The final construction materials for the Solar Shade are yet to be decided.

Certifications

Benefits for environment

They replace regular shade structures with alternatives that will harvest energy for use in school activities, removing reliance on the power grid.

Benefits for human being

By informing students about the collection of electricity and how the quantity of energy harvested directly relates to the world around them the Solar Shade is helping to establish the basic principles of environmentally sustainable design for future generations whilst also performing the basic roles of energy harvesting and shading.