

# e - Proceedings



## Proceeding for International Undergraduates Get Together 2024 (IUGeT 2024)

"Undergraduates' Digital Engagement Towards Global Ingenuity"



Co-organiser:

INSPIRED 2024. Office of Research, Industrial Linkages, Community & Alumni (PJIMA), UiTM Perak Branch

Bauchemic (Malaysia) Sdn Bhd

Universitas Sebelas Maret

Universitas Tridinanti (UNANTI)

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### The Keruing Seating

Nur Ismayumi Izziaty Ismayuddin<sup>1</sup>, Nordin Misnat<sup>2\*</sup>, Wan Zulaikha Wan Zahari<sup>3</sup>, Siti Balqish Buhairi<sup>4</sup>

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#### ABSTRACT

Timber fusion is a mixing material which refers to the innovative practice of combining wood with other materials to create unique and functional products or structures. This blending of materials can result in enhanced properties such as increased durability, improved aesthetics, or expanded functionality. In outdoor settings, timber fusion might involve incorporating timber and materials like metal or plastic to create durable and weather-resistant outdoor furniture. It could also refer to using timber in combination with glass or other materials to construct innovative architectural structures or features. Overall, timber fusion represents a creative approach to maximizing the potential of wood in various applications.

KEYWORDS: Eco-friendly, sustainable, mixed-material, multi-functional, outdoor seating

#### **DESIGN DESCRIPTION**

The Keruing Seating is a fixed seating inspired by Keruing padi's plant (leaf). This seating uses recycled railway wood which is celebrated for its durability and unique weathered appearance. This choice not only repurposes material that contributes to waste but also infuses the furniture with a distinct character and robustness. Complementing the wood is concrete, employed in structural elements such as legs or bases. Concrete provides a sturdy foundation and adds a contemporary industrial touch, enhancing the furniture's longevity and stability. Central to the design is the solar system, seamlessly integrated into the furniture. Solar panels are discreetly embedded, allowing the piece to offer built-in lighting and charging ports. This feature ensures that the furniture remains functional during evening hours, providing ambient illumination and the convenience of charging electronic devices. The solar system enhances the furniture's practicality without compromising its visual appeal. Incorporated into the design are mosquito-repellent plants, such as basil plants. The plant is strategically placed in built-in planters, effectively deterring mosquitoes and improving outdoor comfort. This natural solution not only reduces the risk of mosquito-borne diseases but also adds a refreshing, green element to the furniture. The furniture is shaped to resemble a leaf, blending seamlessly with natural surroundings. This leafinspired form provides both aesthetic charm and ergonomic comfort, with its flowing curves offering a visually striking and comfortable seating experience. Practical features include built-in compartments or pockets for storing charging cables and other small items, ensuring a clutter free and user-friendly outdoor space.

#### NOVELTY AND UNIQUENESS

The choice of material is fundamental to this design's novelty. Recycled railway wood, with its distinctive weathered look and historical context, serves as both a sustainable choice and a



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conversation starter. Railway wood is renowned for its durability and strength, attributes that are preserved even as it is repurposed. By giving this wood a new life, the design reduces waste and minimizes the environmental impact associated with the production of new materials. The character of the wood, marked by years of exposure to the elements and the rigors of railway use, adds an authentic, rustic charm to the seating, making each piece unique. The curvature of the leaf shape can provide ergonomic support, making the seating both aesthetically pleasing and practical. This design element also helps the seating blend with natural landscapes, creating a harmonious connection between human-made structures and the natural world. An innovative feature of this seating design is the incorporation of mosquito-repellent plants like basil plant. These plants not only contribute to the visual appeal of the seating area but also enhance comfort by minimizing the presence of insects. The strategic placement of these plants around the seating ensures that users can enjoy their outdoor experience without the nuisance of mosquitoes, thus merging practical utility with environmental aesthetics.



Figure 1: The Keruing Seating

#### **BENEFITS TO MANKIND**

Environmental Sustainability is a key benefit. By using recycled railway wood, the furniture helps reduce waste and supports eco-friendly practices. Solar panels harness renewable energy, decreasing reliance on non-renewable sources and helping to combat climate change. Health and Well-Being benefits include reduced mosquito exposure, which lowers the risk of diseases, and the use of sustainable materials that support a healthier planet. Economic benefits arise from



the energy savings provided by solar power and the durability of the materials, which result in lower long-term maintenance and replacement costs.

#### **COMMERCIAL POTENTIAL**

Growing Demand for Sustainability is a primary driver of this potential. With increasing environmental awareness, consumers and businesses are actively seeking eco-friendly products. This furniture, crafted from recycled railway wood and equipped with solar technology, meets the demand for sustainable solutions. Its eco-conscious design appeals to a market segment that values environmental responsibility and is willing to invest in products that support green initiatives.

#### CONCLUSION

The leaf-shaped outdoor furniture equipped with solar power and mosquito-repellent features represents a significant advancement in outdoor design. By blending sustainability, functionality, and aesthetic appeal, this innovative piece meets the growing demand for eco-friendly and practical solutions. The use of recycled railway wood and solar technology not only supports environmental conservation but also offers economic benefits through reduced energy costs and lower maintenance. The unique design and added features enhance comfort and usability, making it a valuable addition to residential and commercial spaces alike. Overall, this furniture stands out for its ability to merge artistic design with practical benefits, offering a compelling choice for those seeking to improve their outdoor environments while aligning with modern sustainability goals. Its commercial potential is substantial, driven by its unique features and the increasing preference for sustainable, functional, and aesthetically pleasing products.

#### ACKNOWLEDGEMENT

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Saya yang menjalankan amanah,

Setuju.

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