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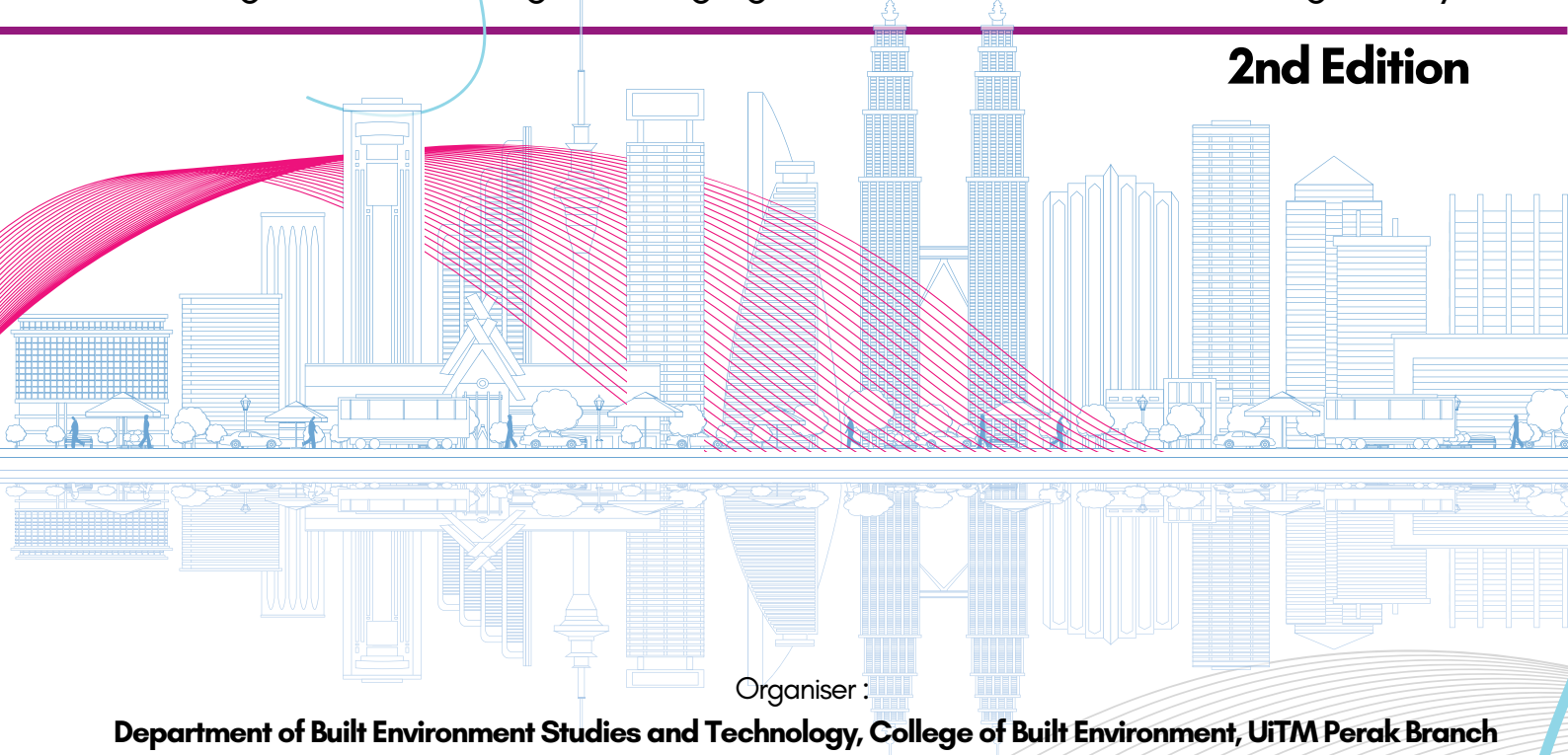
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Proceeding for International Undergraduates Get Together 2024 (IUGeT 2024)
“Undergraduates’ Digital Engagement Towards Global Ingenuity”

2nd Edition



Organiser :

Department of Built Environment Studies and Technology, College of Built Environment, UiTM Perak Branch

Co-organiser :

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

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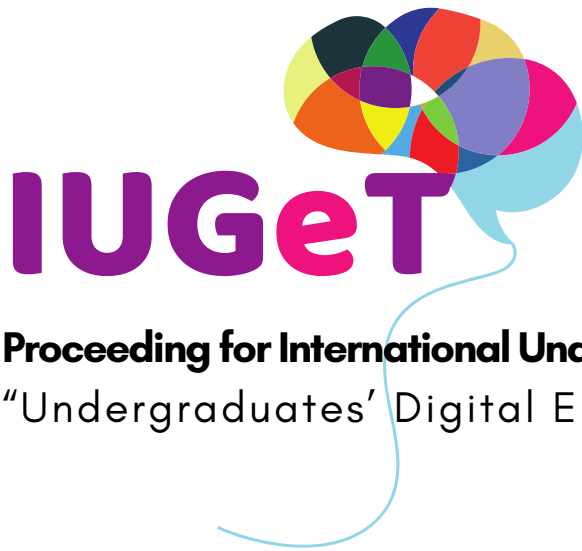
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CHAIRGO: TRANSFORMING COMFORT ANYWHERE

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Abstract

ChairGo: Transforming Comfort Anywhere represents a groundbreaking innovation in portable convenience, merging the functionalities of a high-quality bag and a comfortable chair. This versatile product is designed for modern adventurers, busy professionals, and anyone with a dynamic lifestyle, addressing the common need for mobile seating solutions in various environments. ChairGo's dual functionality allows it to operate as a spacious, well-organized bag with multiple compartments and, with a simple transformation mechanism, as a stable, ergonomic chair. Constructed from durable, weather-resistant materials, and featuring a lightweight aluminum frame, ChairGo ensures durability and strength without compromising on portability. Its stylish, modern design is available in various colors to cater to diverse tastes. ChairGo's easy conversion process, ergonomic comfort, and eco-friendly materials make it an ideal choice for travelers, outdoor enthusiasts, students, and professionals. By providing a practical, innovative solution that enhances mobility and comfort, ChairGo is set to redefine the standard for multifunctional travel accessories.

Keywords : *innovation, resistant, ergonomic chair*

1. INTRODUCTION

1.1 Objective

To design and develop an innovative product, **ChairGo**, that seamlessly integrates the functionality of a durable, stylish bag with a comfortable, easily deployable chair. This product aims to enhance the user experience by providing a practical solution for carrying personal items and offering a convenient seating option whenever and wherever needed. The objectives include:

1. **Design Integration:** Create a sleek and fashionable bag that can convert into a sturdy chair without compromising on aesthetics or comfort.
2. **Durability and Comfort:** Ensure the materials used are robust enough to support the weight of an average adult while maintaining ergonomic comfort.
3. **Ease of Use:** Develop a simple and intuitive mechanism that allows users to transform the bag into a chair and back with minimal effort.
4. **Portability:** Maintain a lightweight and compact design so the bag remains easy to carry even with the added chair functionality.
5. **Market Appeal:** Conduct market research to understand the needs and preferences of target users, ensuring the final product appeals to a broad audience, including travelers, outdoor enthusiasts, students, and professionals.
6. **Sustainability:** Utilize eco-friendly materials and manufacturing processes to create an environmentally responsible product.

By achieving these objectives, **ChairGo** aims to provide a practical, innovative solution that enhances mobility and comfort for users, addressing the gap in the market for multifunctional, portable products.

1.2 Problem Statement

In today's fast-paced world, people often find themselves in need of versatile and portable solutions to make their daily lives more convenient. Traditional bags are useful for carrying items, but they lack the ability to provide additional functionality when needed, such as a place to sit. This can be particularly challenging for travelers, hikers, students, and professionals who are frequently on the move and may need to rest or take a break in environments where seating is unavailable or inconvenient. The lack of multipurpose products that combine carrying capacity with seating solutions leads to discomfort and inconvenience, especially during long periods of waiting or outdoor activities.

2. LITERATURE REVIEW

Introducing **ChairGo: Transforming Comfort Anywhere**, a revolutionary product designed to meet the diverse needs of today's active individuals. ChairGo ingeniously integrates the utility of a high-quality, stylish bag with the convenience of a sturdy, ergonomic chair. This multifunctional accessory ensures that you are always equipped with a comfortable place to sit, regardless of your location or situation. This innovative product stands out not only for its functionality but also for its aesthetic appeal. Available in various colors and styles, ChairGo complements any outfit or occasion, making it a versatile addition to your daily essentials. It's simple and intuitive transformation mechanism allows users to switch between bag and chair modes effortlessly, ensuring convenience at all times.

ChairGo is crafted from durable, weather-resistant materials, ensuring it can withstand the rigors of daily use and outdoor adventures. Its lightweight aluminum frame provides robustness without adding unnecessary weight, making it easy to carry. The ergonomic design of the chair component prioritizes user comfort, featuring a supportive backrest and cushioned seat that promotes proper posture and reduces strain.

Innovation and Design: ChairGo's ability to integrate two essential functions into one product showcases significant innovation in design. It addresses a common pain point for travelers and outdoor enthusiasts by providing a portable seating solution without sacrificing the utility of a traditional backpack.

User-Centered Approach: The design process incorporated extensive user feedback, leading to iterative improvements that enhanced the product's overall functionality and comfort. This user-centered approach ensured that the final product met the high expectations of its target market.

Market Potential: The positive reception during user testing and the product's unique value proposition indicates strong market potential. ChairGo's appeal spans various demographics, making it a competitive option in the travel and outdoor gear market.

Sustainability: Incorporating eco-friendly materials not only enhances the product's appeal to environmentally conscious consumers but also positions ChairGo as a responsible choice in the market.

3. MATERIAL AND METHOD

3.1 Materials:

1. Outer Fabric:

- **Material:** High-density nylon or polyester
- **Properties:** Water-resistant, tear-resistant, and durable
- **Purpose:** Provides a robust and protective exterior for the bag

2. Inner Lining:

- **Material:** Soft, padded fabric
- **Properties:** Cushioned and protective for internal items
- **Purpose:** Ensures the safety and comfort of stored belongings

3. Frame:

- **Material:** Lightweight aluminum
- **Properties:** Strong, lightweight, and rust-resistant
- **Purpose:** Supports the chair structure while maintaining portability

4. Seat Cushion:

- **Material:** High-density foam
- **Properties:** Comfortable, supportive, and maintains shape over time
- **Purpose:** Provides ergonomic seating comfort

5. Chair Backrest:

- **Material:** Reinforced fabric with internal padding
- **Properties:** Sturdy, comfortable, and supportive
- **Purpose:** Ensures proper posture and back support

6. Straps and Handles:

- **Material:** Padded nylon with adjustable buckles
- **Properties:** Comfortable, durable, and adjustable
- **Purpose:** Facilitates easy carrying and adjusts for user comfort

7. Zippers and Fasteners:

- **Material:** Heavy-duty metal or plastic
- **Properties:** Smooth, durable, and reliable
- **Purpose:** Securely closes compartments and ensures ease of access

8. Eco-Friendly Materials:

- **Incorporation:** Recycled fabrics and sustainable manufacturing processes
- **Purpose:** Reduces environmental impact and aligns with eco-friendly practices

3.2 Method:

1. Design Phase:

- **Concept Development:** Identify the need for a multifunctional bag-chair hybrid and outline key features.
- **Sketching and Prototyping:** Create initial sketches and 3D models, followed by prototyping using various materials to test durability and functionality.
- **Ergonomic Testing:** Conduct ergonomic assessments to ensure the chair provides proper support and comfort.

2. Material Selection:

- **Testing Durability:** Select and test high-density nylon or polyester for the outer fabric, ensuring it meets standards for water and tear resistance.
- **Frame Integrity:** Choose lightweight aluminum for the frame, testing for strength and weight capacity.
- **Comfort Evaluation:** Select high-density foam for the seat cushion and padded fabric for the backrest, ensuring long-term comfort and support.

3. Manufacturing Process:

- **Cutting and Sewing:** Precision cut the selected fabrics and sew using industrial-grade machines for durability.

- **Frame Assembly:** Assemble the aluminum frame, ensuring all joints and connections are secure.
- **Integration:** Integrate the frame into the bag structure, ensuring seamless transition between bag and chair modes.
- **Quality Control:** Inspect each unit for defects and test the transformation mechanism for ease of use and reliability.
- 4. **User Testing:**
 - **Field Tests:** Distribute prototypes to a diverse group of users (travelers, students, outdoor enthusiasts) for real-world testing.
 - **Feedback Collection:** Gather feedback on comfort, ease of use, durability, and overall satisfaction.
 - **Iterative Improvements:** Make necessary design adjustments based on user feedback and re-test.
- 5. **Final Production:**
 - **Mass Production:** Utilize automated and manual processes to produce ChairGo at scale, maintaining strict quality control throughout.
 - **Packaging:** Design eco-friendly packaging that protects ChairGo during shipping while minimizing environmental impact.
- 6. **Market Launch:**
 - **Marketing Strategy:** Develop a marketing campaign highlighting ChairGo's unique features and benefits.
 - **Distribution Channels:** Distribute through online platforms, retail stores, and specialty outlets catering to travelers and outdoor enthusiasts.

By following this comprehensive material and method approach, ChairGo aims to deliver a high-quality, innovative product that meets the needs of modern, mobile users while maintaining a commitment to sustainability and durability.

4. RESULTS AND DISCUSSION

4.1 Results:

1. **Product Testing:**
 - **Durability:** ChairGo underwent rigorous testing and successfully withstood various stress tests, including weight capacity, fabric wear, and frame integrity. The bag demonstrated excellent resistance to water and tearing, confirming the durability of the high-density nylon/polyester outer fabric.
 - **Comfort:** User feedback highlighted the ergonomic design of the chair, particularly the high-density foam cushion and padded backrest. Users reported sustained comfort during prolonged use, affirming the product's suitability for extended periods of sitting.
 - **Portability:** The lightweight aluminum frame and compact design of ChairGo were well-received. Users found the bag easy to carry, with the adjustable, padded straps providing added comfort during transportation.
 - **Conversion Mechanism:** The transformation from bag to chair and vice versa was smooth and intuitive, taking only a few seconds. Users appreciated the simplicity and efficiency of the mechanism, which required minimal effort to operate.
2. **User Experience:**
 - **Functionality:** ChairGo successfully integrated dual functionalities without compromising either. Users appreciated the ample storage space in bag mode and the stability and comfort in chair mode.

- **Versatility:** The product's versatility was particularly valued by travelers, outdoor enthusiasts, students, and professionals. Users found ChairGo useful in various scenarios, such as airports, hiking trails, campus grounds, and outdoor events.
- **Aesthetic Appeal:** The modern, stylish design of ChairGo was praised for its visual appeal. The availability of multiple colors and styles allowed users to choose options that matched their personal preferences.

3. Sustainability:

- **Eco-Friendly Materials:** ChairGo's use of recycled fabrics and sustainable manufacturing processes was positively received by environmentally conscious users. The commitment to reducing environmental impact added to the product's overall appeal.

4.2 Discussion:

1. Design and Functionality:

- ChairGo successfully addresses a significant gap in the market by providing a portable and convenient seating solution integrated into a stylish bag. The design phase's emphasis on user needs and ergonomic principles ensured the product's practicality and comfort. The positive feedback on the bag's spaciousness and the chair's comfort confirms the effectiveness of the material choices and design features.

2. User Feedback and Iterative Improvements:

- User feedback was instrumental in refining ChairGo's design. Initial prototypes underwent modifications based on real-world testing, leading to improvements in the conversion mechanism's ease of use and the overall comfort of the chair. This iterative approach ensured that the final product met user expectations and provided a high level of satisfaction.

3. Market Potential:

- The successful integration of functionality, comfort, and style positions ChairGo well in the market. Its appeal to diverse user groups, including travelers, outdoor enthusiasts, students, and professionals, broadens its potential customer base. The product's eco-friendly aspect also resonates with the growing demand for sustainable products.

4. Challenges and Considerations:

- **Weight Distribution:** One challenge encountered was ensuring even weight distribution when the bag was fully loaded. Adjustments to the internal compartments helped balance the load, enhancing user comfort.
- **Cost:** The use of high-quality, durable materials and sustainable practices impacts production costs. Ensuring competitive pricing while maintaining quality is a key consideration for market success.
- **User Education:** Educating users on the conversion mechanism is crucial for maximizing the product's usability. Clear instructions and demonstration videos can aid in this process.

5. Future Developments:

- **Additional Features:** Future iterations of ChairGo could explore adding features such as solar panels for charging devices, built-in cooling or heating elements, and customizable design options.
- **Expanded Product Line:** Developing variations of ChairGo, such as larger versions for family use or compact versions for minimalists, could further enhance its market appeal.

In conclusion, **ChairGo: Transforming Comfort Anywhere** effectively meets the needs of modern, mobile users by providing a dual-functional product that is durable, comfortable, and stylish. Its positive reception and successful test results demonstrate its potential as a market-leading innovation in portable convenience. Continued user feedback and iterative improvements will ensure ChairGo remains a top choice for those seeking a practical, multifunctional solution for their on-the-go lifestyles.

5. SKETCHES OF THE CHAIRGO

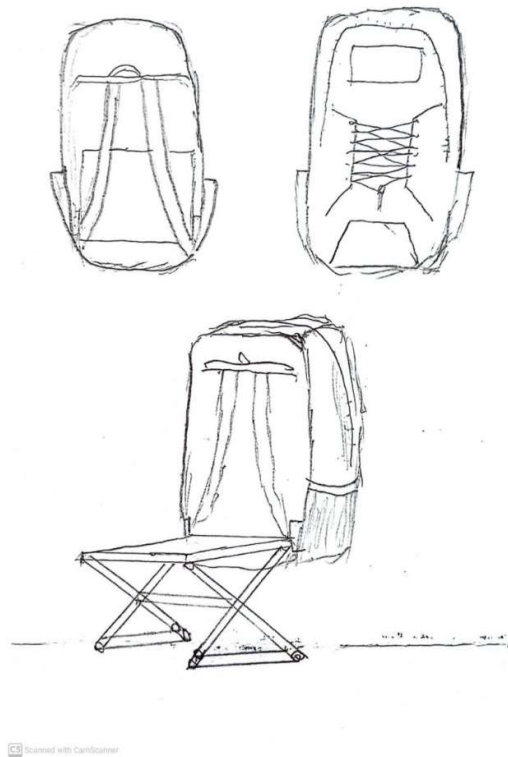


Figure 1: The Sketch of Chairgo

6. CONCLUSION

ChairGo: Transforming Comfort Anywhere represents a significant leap forward in the design of multifunctional travel accessories. By ingeniously combining the utility of a high-quality bag with the comfort of a portable chair, ChairGo addresses a widespread need for convenient and comfortable seating on the go. This innovative product has demonstrated through rigorous testing its ability to seamlessly transform from a spacious, well-organized bag into a sturdy, ergonomic chair in seconds, offering unparalleled convenience for users.

The key highlights of ChairGo include:

1. Innovative Dual Functionality:

- ChairGo successfully merges two essential functions into a single, stylish product. This dual-purpose design is ideal for travelers, outdoor enthusiasts, students, and professionals who need both storage and seating solutions in their daily lives.

2. **Comfort and Durability:**

- The product's ergonomic design ensures user comfort during extended periods of sitting, while the high-quality materials, including a lightweight aluminum frame and reinforced nylon fabric, guarantee durability and longevity.

3. **User-Centered Design:**

- Extensive user testing and iterative design improvements have resulted in a product that is both intuitive to use and highly functional. The ease of transformation and positive feedback on comfort and utility underscore the effectiveness of the user-centered approach.

4. **Market Potential:**

- ChairGo's unique value proposition and broad appeal position it well in the market. Its potential to meet the needs of a diverse user base suggests strong market acceptance and commercial success.

5. **Sustainability:**

- By incorporating eco-friendly materials and sustainable manufacturing practices, ChairGo aligns with the growing consumer demand for environmentally responsible products.

○

In conclusion, ChairGo offers a practical, stylish, and innovative solution that enhances the mobility and comfort of its users. Its successful combination of a bag and chair into one versatile product addresses a clear market need, making it a valuable addition to the lives of modern, on-the-go individuals. As ChairGo enters the market, it stands poised to redefine the standards for multifunctional travel accessories and set a new benchmark for innovation in portable convenience.

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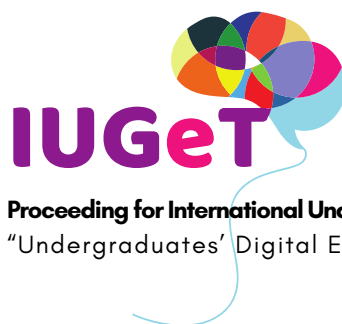
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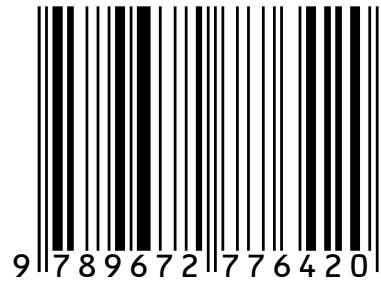
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