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# E-PROCEEDINGS

## INTERNATIONAL TINKER INNOVATION & ENTREPRENEURSHIP CHALLENGE (i-TIEC 2025)

"Fostering a Culture of Innovation and Entrepreneurial Excellence"



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**PTDI, UiTM Cawangan Johor**  
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**ORGANIZED BY:**

Electrical Engineering Studies, College of Engineering  
Universiti Teknologi MARA (UiTM) Cawangan Johor  
Kampus Pasir Gudang

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**A-ST007 - A-ST159**

|                                                                                                                                                                                       |    |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|
| A-ST007: IN-SITU EPOXIDATION OF CASTOR OIL WITH APPLIED NOVEL SULFATE-IMPREGNATED ZEOLITE CATALYST .....                                                                              | 8  |
| A-ST009: ADVANCED SOLAR TRACKING SYSTEM WITH TEMPERATURE CONTROL AND REAL-TIME MONITORING.....                                                                                        | 13 |
| A-ST012: ONLINE PARKING SYSTEM: PARKING MANAGEMENT AND MONITORING DATA .....                                                                                                          | 19 |
| A-ST013: CONTINUOUS FOOD SUPPORT FOR STRAY ANIMALS.....                                                                                                                               | 24 |
| A-ST014: AUTOMATED AQUAPONIC WATER QUALITY MANAGEMENT SYSTEM.....                                                                                                                     | 29 |
| A-ST017: SMART WATERING SYSTEM .....                                                                                                                                                  | 34 |
| A-ST018: INTEGRATED IMMUNE CHAOTIC EVOLUTIONARY PROGRAMMING (IICEP) OPTIMIZER TOOL FOR INTEGRATING BATTERY ENERGY STORAGE SYSTEMS IN TRANSMISSION NETWORK FOR LOSS MINIMIZATION ..... | 39 |
| A-ST019: BAYMAX: GUARD COMPANION .....                                                                                                                                                | 48 |
| A-ST021: ECODRY LUXE .....                                                                                                                                                            | 53 |
| A-ST022: REVOLUTIONIZING EPOXIDE SYNTHESIS: CATALYTIC INNOVATIONS IN WASTE COOKING OIL EPOXIDATION .....                                                                              | 60 |
| A-ST023: ALERTIFY: RECEIPT FRAUD DETECTION APPLICATION .....                                                                                                                          | 64 |
| A-ST026: REVOLUTIONIZING ACCESSIBILITY: AN IOT-POWERED DOORBELL FOR THE DEAF COMMUNITY.....                                                                                           | 69 |
| A-ST028: CREATION OF SUSTAINABLE COASTAL SEDIMENT DATABASES FOR SCIENTIFIC, ENVIRONMENTAL, AND SOCIETAL APPLICATIONS.....                                                             | 73 |
| A-ST029: GREEN SAPONIFICATION PROCESS: LIQUID SOAP FROM WASTE COOKING OIL AND PANDAN LEAVES .....                                                                                     | 77 |
| A-ST031: LECTURERS TO COURSES STRUCTURED ASSIGNMENT BY ZONING BINARY INTEGER GOAL PROGRAMMING MODELS FEATURING ENHANCED MODIFIED HUNGARIAN METHOD (L-CSAZ BIGPE-MHM MODELS) .....     | 82 |
| A-ST032: INTERACTIVE REAL-TIME VISUALIZATION OF FAULT TOLERANCE SIMULATION FOR INDUCTION MACHINES .....                                                                               | 90 |
| A-ST033: SWEETATO CREAMER.....                                                                                                                                                        | 95 |

## **A-ST021: ECODRY LUXE**

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### **ABSTRACT**

EcoDry Luxe is a multipurpose and innovative shoe rack designed to address common challenges in shoe care, such as wetness, bacteria buildup, odors, and limited functionality. This product combines advanced features, including a steam drying system, UV-light sanitization, automated deodorant spray, airflow system, and a sock hanging compartment, to ensure shoes remain dry, hygienic, and odor-free. The idea for EcoDry Luxe emerged from the need for a more effective, convenient, and eco-friendly solution to traditional shoe racks, which often fail to tackle issues like mold and musty smells. By integrating sustainable design with advanced technology, EcoDry Luxe provides a complete solution for maintaining footwear. The product's uniqueness lies in its combination of hygiene-focused features and added conveniences, such as a wireless charging port, lightweight portability, and energy-saving eco mode. EcoDry Luxe reduces the reliance on excessive energy and chemical deodorizers, contributing to a healthier environment. This innovation has a strong commercialization prospect, targeting households, athletes, and professionals who value hygiene and convenience. Its potential impact includes improving shoe longevity, reducing waste, and promoting sustainable living. EcoDry Luxe is not only a practical household item but also a step forward in addressing socio-environmental concerns through efficient and eco-conscious design.

**Keywords:** shoe rack, wireless charging port, lightweight portability, energy-saving eco mode. Eco-conscious design

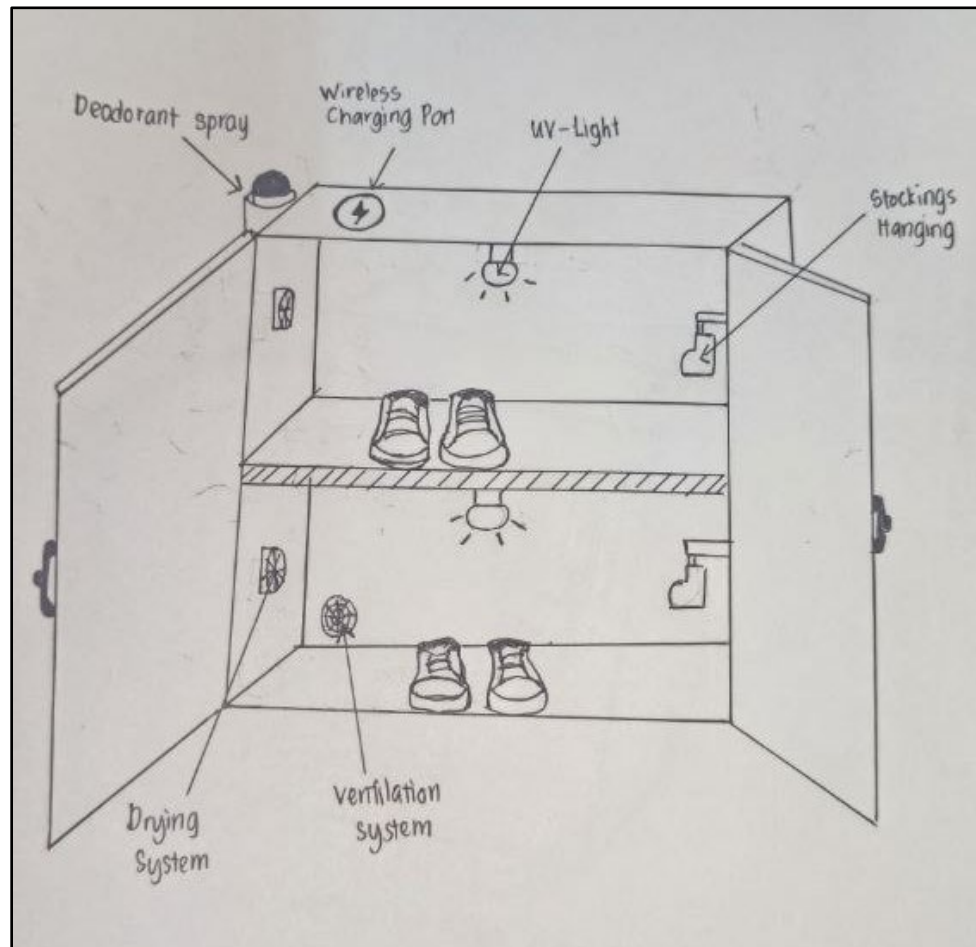
### **1. Product Description**

EcoDry Luxe is a revolutionary and multifunctional shoe rack designed to redefine shoe care. Combining innovative technology with practical design, it offers solutions to common footwear issues, such as wetness, odors, and bacteria buildup. Key features include a steam drying system for quick and effective drying, a UV-light sanitization module that eliminates 99.9% of germs, and an automated deodorant spray with customizable scents like lavender and citrus for a refreshing finish. The airflow system ensures consistent ventilation to prevent moisture and odors, while the socks hanging compartment adds convenience for drying smaller items. Designed with sustainability in mind, EcoDry Luxe features an eco-friendly power mode to reduce energy consumption, making it a cost-effective and environmentally responsible choice. Its wireless charging port offers added functionality, allowing users to charge devices while organizing their footwear. Lightweight and portable, it fits seamlessly into modern lifestyles.

EcoDry Luxe is more than a shoe rack—it's a comprehensive solution for maintaining shoe hygiene, extending footwear lifespan, and enhancing everyday convenience. Ideal for households, athletes, and professionals, it offers a sustainable, efficient, and stylish way to care for shoes while promoting a cleaner and healthier living environment.

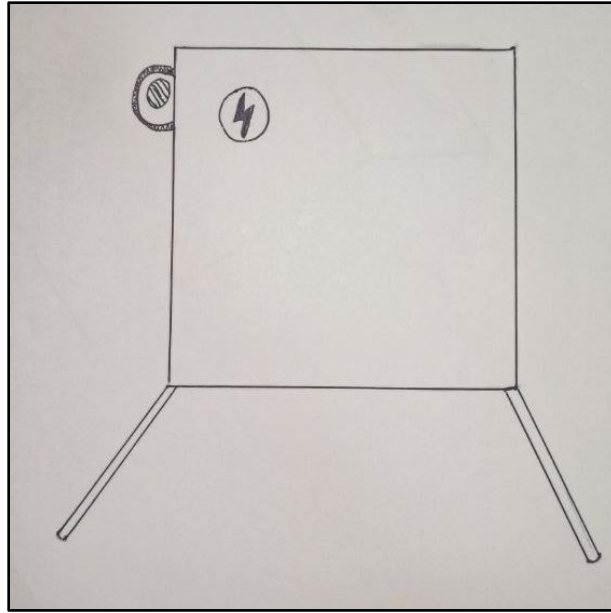
## 2. Pictures

The concept of this shoe rack is to combine functionality, convenience, and innovation, addressing common challenges faced in shoe care. Below is figure for the design including front view, top view, right view, and left view with each own function.



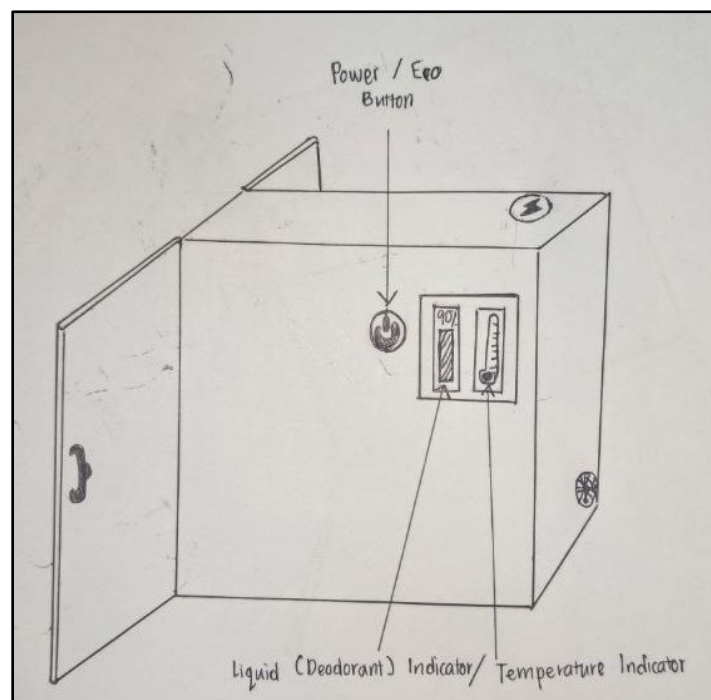
**Figure 1.** Front View

**Figure 1** shows the design showcases a streamlined structure, combined with advanced functionality. The balance of style and practicality ensures that it complements the any modern home or space.



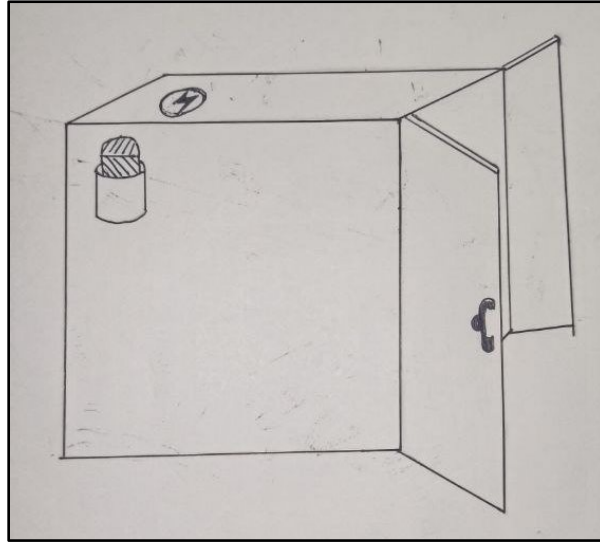
**Figure 2. Top View**

EcoDry Luxe reveals its carefully planned layout, featuring an accessible wireless charging port and a spacious rack for optimal shoe arrangement shown in **Figure 2**. Every inch is designed to maximize usability while maintaining a clean, clutter-free look.



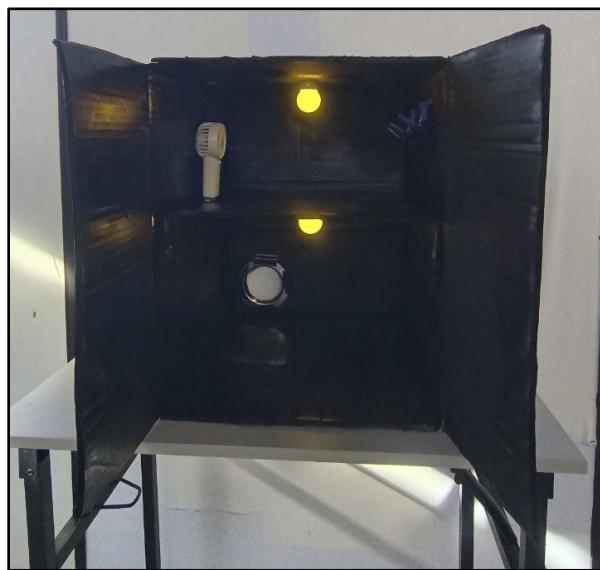
**Figure 3. Right View**

**Figure 3** is the right side where functionality takes center stage. Here, you'll find the liquid indicator, temperature display, and power button, all intuitively placed for easy access and precise control of the drying and deodorizing systems.



**Figure 4.** Left View

EcoDry Luxe demonstrates its thoughtful engineering shown in **Figure 4**. The deodorant spray and airflow systems are seamlessly integrated, ensuring shoes are kept fresh and dry without disrupting the sleek and minimalist appearance.



**Figure 5.** EcoDry Luxe Complete Prototype

Our final prototype, as shown in **Figure 5**, is designed to make your life easier and your shoes fresher. From quick steam drying and germ-killing UV light to a refreshing deodorizing spray, it's packed with features to keep your footwear in top shape. Lightweight, portable, and eco-friendly, it fits perfectly into your daily routine. More than just a shoe rack, it's a smarter way to care for your shoes.

### **3. Novelty and uniqueness**

The current market for shoe racks primarily addresses basic storage needs but overlooks several common problems such as unpleasant odors and bacteria, lack of an efficient drying mechanism for wet shoes and so on. Thus, EcoDry Luxe offers a complete solution that goes beyond simple storage with steam drying system that ensures fast and efficient drying of wet shoes, preventing mold and bacteria buildup. It's UV-light sanitization eliminating 99.9% of germs to maintain hygiene. The automated deodorant spray with customizable scents, such as lavender and citrus, adds a refreshing touch, elevating the user experience. EcoDry Luxe's airflow system enhances ventilation to combat odors and moisture buildup, while the dedicated socks hanging compartment provides added convenience, making it a one-stop solution for footwear care. The integration of a wireless charging port and eco-friendly power mode further distinguishes it from competitors, offering multitasking functionality and sustainability. Its lightweight and portable design ensures ease of use and adaptability to various spaces, making it suitable for modern lifestyles. EcoDry Luxe combines practicality, hygiene, and eco-consciousness in one product, addressing gaps in the market while promoting healthier and more sustainable living. This blend of innovation and convenience positions EcoDry Luxe as a truly unique product.

### **4. Benefit to mankind**

EcoDry Luxe offers significant benefits by addressing common issues associated with shoe care, such as bacteria buildup, odors, and inadequate drying solutions. By integrating advanced features like UV-light sanitization, steam drying, and an automated deodorant system, it promotes hygiene and helps reduce health risks from bacteria and mold exposure. The eco-friendly power mode ensures minimal energy consumption, aligning with global sustainability efforts and reducing environmental impact. Its efficient design also contributes to extending the lifespan of footwear, reducing waste and promoting a more sustainable lifestyle. By combining functionality with convenience, EcoDry Luxe saves time and effort for users, enhancing daily routines and creating a cleaner living environment. Its portability and innovative features make it accessible for diverse groups, including households, athletes, and professionals. In doing so, EcoDry Luxe supports healthier living while addressing socio-environmental challenges in modern lifestyles.

### **5. Innovation and Entrepreneurial Impact**

This project embodies innovation by combining advanced technology and sustainable design to address overlooked challenges in shoe care. Its unique features, such as the steam drying system, UV-light sanitization, and eco-friendly power mode, showcase creative problem-solving and a commitment to modern lifestyle needs. This project fosters a culture of

entrepreneurship by inspiring new ideas for integrating technology into everyday products. It demonstrates how addressing simple but persistent issues, like wet and smelly shoes, can create opportunities for impactful and marketable solutions. Within the community and industry, EcoDry Luxe encourages sustainable practices and sparks discussions around hygiene and eco-conscious design. Its development serves as a model for students, innovators, and entrepreneurs, highlighting the potential of combining innovation with practical utility. By bridging the gap between technology and daily convenience, EcoDry Luxe contributes to a forward-thinking mindset that drives entrepreneurial growth and societal improvement.

## **6. Potential commercialization**

Result from the market survey shows that this product has great potential to succeed in the market by addressing a common problem—keeping shoes clean, dry, and odor-free. Most respondents were willing to buy this product and 48.3% of them mentioned that drying system is the most useful function that are needed. Besides, innovative features, like UV sanitization, appeal to households, athletes, and professionals looking for convenience and hygiene. The lightweight, portable design makes it perfect for small spaces, while the eco-friendly mode and added functions like a wireless charger add value. With rising interest in sustainable, multifunctional products, this shoe rack is an ideal fit for today's lifestyle needs.

## **7. Acknowledgment**

First and foremost, praises and thanks to the Almighty Allah SWT, for His showers of blessings throughout our research work to complete our project. We would like to express our deep and sincere gratitude to our lecturer Dr. Najdah Abd Aziz for giving us the opportunity and for our great cooperation in completing this project with her guidance. Her dynamism, vision, sincerity, and motivation have deeply inspired us. It was a great privilege and honor to work and study under her guidance. Dr Najdah always gives us full support on how to complete the project and the main purpose of having good results from the study studied. Additionally, we sincerely thank our family members, friends, and everyone who contributed, either directly or indirectly, for their unwavering support throughout this journey.

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Dr. Najdah Abd Aziz is a Senior Lecturer of Faculty Business and Management UiTM. She specializes in ethical consumption behavior and marketing by holding a PhD in that field. With over 24 years of experience, she has taught a few courses and published numerous academic papers in index and non-index journals. She works bridges academia and industry by participating in conferences and supervising postgraduates, undergraduates and internship students. She is active in joining product innovation competitions and winning a several awards such as gold, bronze and silver. Currently she is teaching entrepreneurship courses for science and technology students.



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