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THE 13TH INTERNATIONAL INNOVATION, INVENTION & DESIGN COMPETITION 2024

EXTENDED ABSTRACTS

e-BOOK

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THE 13th INTERNATIONAL
INNOVATION, INVENTION &
DESIGN COMPETITION 2024



Organized by:
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QUIC POWER ACCESS: REVOLUTIONIZING MOBILE CHARGING WITH SMART SOLUTIONS

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ABSTRACT

The objective of the QUIC's disposable power bank vending machine and smart dustbin initiative is to transform power accessibility by introducing innovative vending services for disposable power banks. This project focuses on delivering a hassle-free and efficient solution for individuals, particularly students and busy professionals, who depend on consistent charging of their mobile devices. The proposed endeavor entails strategically placing vending machines equipped with high-quality power banks at UiTM Perak, Seri Iskandar Campus, enabling immediate access to portable power and alleviating concerns of battery depletion while on the go. Additionally, the initiative underscores environmental consciousness through a comprehensive recycling program for used power banks facilitated by a smart dustbin. Furthermore, the project underscores a commitment to customer satisfaction by actively seeking feedback for continual enhancement.

Keyword: disposable power bank, machine, sustainability, QUIC, vending

1. INTRODUCTION

The landscape of mobile charging is undergoing a transformation, propelled by the innovative concept introduced by QUIC's disposable power bank vending machine and smart dustbin project. In response to the growing demand for reliable power access on-the-go, this initiative aims to revolutionize the traditional approach to charging by offering a seamless and convenient solution. With the deployment of vending machines equipped with high-quality power banks, users, particularly students and busy professionals, gain instant access to portable power, eliminating the worry of battery depletion while navigating their daily routines. This novel approach not only addresses the practical need for accessible charging but also aligns with sustainability goals, as emphasized by the comprehensive recycling program facilitated through smart dustbins. By integrating environmental responsibility into the core of its operations, the project signifies a shift towards sustainable practices in the realm of mobile technology (Dar et al, 2022).

Moreover, this initiative underscores a commitment to customer satisfaction by actively seeking feedback for continuous improvement. As consumer needs evolve, this feedback loop ensures that the project remains responsive and adaptable, further enhancing its efficacy and relevance in the ever-changing landscape of mobile technology (Verhoef et al, 2023) Through the integration of innovative vending services, environmental stewardship, and a customer-centric approach, QUIC's project not only introduces a new paradigm for mobile charging but also sets a precedence for sustainable innovation in the industry.

2. METHODOLOGY

The methodology employed in the development of this innovative project heavily emphasizes the principles of design thinking, particularly in understanding and empathizing with the needs of users. Initially, this process involved thorough document reviews to gain insights into existing challenges and gaps in mobile charging accessibility. Subsequently, interviews and group discussions were conducted with diverse user groups, including students and professionals, to delve deeper into their experiences and pain points regarding mobile charging. By immersing themselves in the users' perspectives, the project team was able to identify key requirements and preferences, informing every stage of the project from concept ideation to design iteration. This user-centered approach guided the creation of prototypes, which were then refined through iterative feedback loops to ensure alignment with user needs and preferences. Through this methodical and iterative process rooted in design thinking principles, the project seamlessly transitioned from concept to implementation, ultimately resulting in the development of a solution tailored to meet the unique challenges of mobile charging accessibility.

3. THE CONCEPTUAL DESIGN

QUIC introduces a groundbreaking approach to disposable power banks in UiTM Perak Branch, Seri Iskandar by offering compact, single-use power banks via strategically placed vending machines in campus. The accompanying mobile app seamlessly integrates with these machines, providing real-time availability updates and guiding users to the nearest location, saving time and effort. Emphasizing sustainability, the app also highlights disposal bin locations, encouraging responsible waste management and minimizing e-waste through a gamified point reward system. Combining convenience, sustainability, and affordability, QUIC aims to revolutionize the disposable power bank industry by providing highly portable, user-friendly solutions at cost-effective prices, making reliable charging accessible to all (see Figure 1 and Figure 2).



Figure 1. The conceptual design of QUIC vending machine and smart disposal dustbin



Figure 2. The conceptual design of QUIC application

4. CONCLUSION

In conclusion, QUIC's innovative approach to disposable power banks represents a significant leap forward in the realm of mobile charging accessibility. By combining convenience, sustainability, and affordability, QUIC has successfully addressed the needs of users while also promoting responsible waste management practices. Through the seamless integration of vending machines and a user-friendly mobile app, QUIC has streamlined the charging process, saving time and effort for users on-the-go. With its commitment to sustainability and cost-effectiveness, QUIC has positioned itself as a leader in the industry, paving the way for a more efficient and environmentally conscious approach to mobile charging. Moving forward, the success of QUIC serves as a testament to the power of innovation and design thinking in addressing real-world challenges, offering a promising glimpse into the future of mobile technology and sustainability initiatives.

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