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DESIGN OF A KIOSK AND SOFTWARE INTERFACE FOR A BRAND TO DISPLAY IN SUPERMARKET

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Abstract: This project involves designing a Kiosk and software interface for a brand to display in supermarkets for promoting the brand and reaching out to people to show the brand's identity and value. Thorough background research was conducted to understand and assess the product, its evolution, its uses, trends etc. A market study to understand the different market segmentation of the product, the trends, market drivers and restraints, brands, and cost analysis of the product. Conducted ethnographic study by doing in-person interviews with experts in the field of physiotherapy and electrotherapy and collected the required data pertaining to the product's functionality, usability, and aesthetic factors. Generated various concepts, keeping in mind the usability, functionality, and aesthetic aspects of the product. Scale down model was made for the selected concepts to study and understand the product's usability. A concept user interface was designed for the product's functionality and usability aspect through digital software's and rendered product context to showcase the product's usability and functionality

Keywords: Kiosk, Kiosk Architecture, Display board, Interface unit, Self-service technology, Self-service kiosk Customer value

I. INTRODUCTION

A device like a Kiosk and software interface requires feelings, judgment, design knowledge, technical principles, and acquaintance with a wide range of subjects that help with problem solving. Inspiration, a concept or idea, and a commitment to ensuring customer satisfaction are required for the creation of both items. Kiosks are like miniature, interactive pods offering convenience at your fingertips. A self-service booth equipped with a touchscreen is designed to offer convenience and efficiency in various public spaces, such as malls, airports, museums, or restaurants. These kiosks are compact, often sleek, and can either be manned by staff or fully autonomous, depending on the service

provided. The touchscreen interface is intuitive, allowing users to navigate through options with ease, whether it's placing an order, checking in, or accessing information. In a mall, for example, a self-service kiosk might allow customers to order food or find store directories, while at an airport, it could help travellers check-in, print boarding passes, or access flight information. In a museum, an interactive kiosk can offer detailed descriptions of exhibits, suggest tours, or provide maps to guide visitors. These kiosks are typically designed to be user-friendly, sometimes multilingual support to accommodate diverse audiences. They are strategically placed in high-traffic areas to reduce wait times, improve service efficiency, and enhance the overall experience for users. Some self-service booths even incorporate payment systems, enabling customers to pay for services directly through the kiosk, whether by credit card, mobile payment, or other digital methods. This level of automation frees up operators to support with more complex tasks while giving users quick and easy access to the services they need.

II. LITERATURE REVIEW

Kiosks are like miniature, interactive pods offering convenience at your fingertips. Imagine a self-service booth equipped with a touchscreen. These can be manned or unmanned, providing a range of services depending on the location. Kiosk is a small retail that always locate in highly traffic space. They have many special characteristic. They use small space about 2-3 square meters and they have 1 or 2 staff for selling the products. Furthermore, their characteristics are different in each shopping center because of the policy. Kiosks are always in booth or cart and sell various types of product such as drink, gift shop, cosmetics and jewelry.[1] The basic information about kiosk technology adoption in QSR (Quick Service Restaurants) and marketing strategies for managerial performance is presented in this study. This research increased the introduction of kiosks in Korea, proposed an efficient restaurant development strategy, and built the combined concept model based on the acceptance literature. However,



there were certain restrictions. One apparent explanation was that since everyone needs to adapt new technology [2]. The self-service kiosk was invented to improve time and cost efficiency. The birth of the vending machine dates as far back as the 1800s. Kiosk manufacturers have come a long way since the first machines hit the market.

The First Vending Machines Self-service was introduced in the 1880s with the invention of the vending machine. The first renditions were small stands or box-like contraptions that offered small products like postcards, gum, and stamps. The customer would place money into the kiosk and take the product. It was the first time a customer was able to purchase a product without the help of a vendor [3]. The interactive kiosks impact consumer behaviour and purchasing choices. It implies that kiosk technology has the potential to standardize information, thereby improving perceived service quality. An overview of current applications of interactive kiosks as well as potential paths. [4]. Kiosk are widely used in the sectors like retail, exhibition, tourism, restaurant, education, health, corporate and many more. Retail stores: Kiosks can be used for self-checkout, to order food, or to get information about products. Airports: Kiosks can be used for check-in, to print boarding passes, or to get information about flights. Train stations: Kiosks can be used to purchase tickets, to get information about train schedules, or to find your way around the station. Tourist attractions: Kiosks can be used to purchase tickets, to get information about the attraction, or to rent audio guides[5]. Customers use self-service technologies (SSTs) on a daily basis, such as mobile scanning devices, online banking, and ATMs. Different kinds of core consumer value groups, such as functional, experiential, symbolic, and cost value, are revealed by the current research. Future studies should concentrate on the self-service kiosk (SSK) customer value framework's higher hierarchical levels in order to gain a better knowledge of value, value groupings, and their interactions. The framework provides a foundation for creating the real metrics and testing of customer value in SSKs. It indicates that the gap in the SSK customer value destruction context related to the sacrifice value group should be addressed in future research [6]. Pandemic has accelerated the adoption of many kinds of technology in the food service industry. One of the commonly encountered technologies is Self-Order Kiosk (SOK)[7]. A self-order kiosk (SOK) is the most recent innovative technology restaurants offer to enhance the customer experience, particularly in quick-service establishments. It is also known as Self-Service Technology (SST) that has gained popularity in the food service business in recent years. Self-Order Kiosk (SOK) known as interface technology that enables consumers to create a service without the involvement of company employees independently. By using a self-order kiosk, it is possible to provide a service that is more effective in attracting consumers. Stated that the idea of a self-service

kiosk refers to a touchscreen machine that enables customers to privately deliver services without personnel intervention. Self-Order Kiosks (SOK) are replacing the traditional interaction between the service provider and the customers which the customers can submit orders independently. Self-order kiosks are computerized touchscreens devices that simplify the ordering process by showing menu options which customer can choose the items they want, offering deals based on the customers' choices, and processing transactions [8]. Self-service technology in quick service restaurants allows customers more control over their dining experience and, ideally, more satisfaction. They also offer potential benefits to the operator in terms of reduced labour costs and increased sales [9]. The software developed for animation and multimedia based on the interviews and survey and behavioural study in the museum found many problems, and they created interactive games, puzzles, and stories. It also demonstrated visualization of ancient lifestyles. Kiosk software was designed to address cognitive needs, supporting higher-level learning through experience. This approach not only engages visitors but also fosters a deeper understanding of historical contexts and cultural narratives [10]. Owing to technological advancement more kiosks were developed and installed public places, currently elderly, visual, hearing, and physical impairments persons are facing huge while using kiosks. Collected data through literature review and interviews, focus group identified problems and developed concepts. The concepts of accessibility and usability were defined based on the opinions derived through the study. The main essentials functions were included and developed guidelines [11]. The kiosk is designed for malls to improve customer service, marketing and advertising, dynamic displays and secure payment. Considering these and developed using design guidelines like fit to the environment, fit to the retailer's brand, modular, aesthetic of the product to save money and time is the major concerns and using UI/UX to design the solution according to the target audience [12]. Designing a kiosk for users focusing on higher age group using skeuomorphic design, a method popularized by Apple that integrates visual elements or cues from real-world objects into digital interfaces. The navigation structure is particularly important in this context, as it greatly influences the acceptance of technology among the users [13]. A kiosk can improve the customer's shopping experience. Kiosks are easily accessible, and the individuals working there are usually pleasant and ready to help, both of which make it simpler to provide the customer with detailed information about a product or service[14]. The main users of kiosk would be determined according to the purpose of installation. Because users in public places are different in age, gender, job, the standard of living and region, kiosk contents design should reflect their own differences and features[15]. Despite significant technological advancements, many consumers have yet to embrace and

experience new technologies. Using an inductive research approach, the study primarily focused on examining the convenience and performance of self-service technologies (SSTs). It discovered three convenience features—locational convenience, time convenience, and physical exertion—and eight performance factors based on customer choice in detail: usefulness, speed, efficiency, consistency, cost-effectiveness, user-friendliness, reliability, and trial ability. Using SSTs in the future to comprehend different customer reactions and emotional responses [16].

Materials and Methodology:

Considering secondary research, primary research and product study and market study identified problems, based on the problems develop the concepts with doodles and digital models and selected final model and made the physical model.

III. CONCEPT GENERATION

Imagine a kiosk that departs from the typical sleek, metal design. This one embraces a warm and inviting aesthetic, crafted from wood with a rich, traditional look. The sides feature panels of intricately woven rattan webbing, its design inspired by the gentle curves of waves, adding a touch of texture and coastal charm. Atop the kiosk, a graceful archway frames the brand's logo, creating a sense of welcome and prominence. But functionality isn't forgotten. Behind its charming facade, the kiosk boasts ample storage, capable of holding over 35 bottles of hair oil, ensuring easy product access for customers. This unique kiosk effectively combines traditional elements with a touch of whimsy, all while serving its practical purpose of showcasing and storing products and is a delightful fusion of traditional elements and a touch of island flair, perfectly suited to showcase and store its tropical hair oil treasures.



Figure 1.1 Concept 1

Concept-2

Ditch the ordinary and step into the tropics! This hair oil kiosk exudes a laid-back island vibe. Crafted with a traditional wood finish, its warmth is complemented by intricately woven rattan webbing on the sides. Inspired by the gentle ebb and flow of ocean waves, the webbing adds a

delightful touch of texture and creates a visual connection to the hair oil's potential benefits. Topped with a welcoming arch displaying the brand's logo, the kiosk beckons customers. to explore. But beauty isn't just skin deep – this functional piece holds a surprising amount of storage, capable of housing over 20 bottles of hair oil, keeping products organized and readily accessible for both staff and shoppers. This unique kiosk is a delightful fusion of traditional elements and a touch of island flair, perfectly suited to showcase and store its tropical hair oil treasures.



Figure 1.2 Concept 2

Concept-3

Transport yourself to the tropics with this one-of-a-kind hair oil kiosk. Unlike the typical sleek design, this one embraces a warm, inviting aesthetic with a traditional wood look. The sides are adorned with intricately woven rattan webbing, its design not simply uniform but inspired by the vibrant contrast of colors found in crashing waves. Blues and turquoise interweave with hints of white and sand, creating a captivating textural journey that evokes the essence of the tropics. Atop the kiosk, a welcoming arch displays the brand's logo, adding a touch of prominence. Despite its focus on style, functionality remains key. Behind its charming facade, the kiosk offers efficient storage, holding over 10 bottles of hair oil, ensuring both staff and customers can easily access these tropical hair care treasures. This unique kiosk effectively combines traditional elements with a touch of island flair, all while serving the practical purpose of showcasing and storing its products.



Figure 1.3 Concept 3

Concept-4

Escape to the tropics with this unique hair oil kiosk. Crafted from warm, traditional wood, it exudes a welcoming charm.

The sides feature intricate panels of rattan webbing, woven in a captivating design that intertwines the letter "S" with the gentle curves of ocean waves. This playful motif evokes a sense of movement and island paradise. Atop the kiosk, a prominent arch frames the brand's logo, positioned proudly in the center for maximum visibility. But functionality is key too. This charming display boasts ample storage, cleverly designed to hold over 20 bottles of hair oil, ensuring easy access for both staff and customers. This one-of-a-kind kiosk seamlessly blends traditional elements with a touch of island flair, creating a visually captivating space to showcase and store its tropical hair care treasures.



Figure 1.4 Concept 4

Final Concept

Concept selected with help of weighted ranking method and necessary feature added in the final concept.



Figure 1.5 Final Concept rendered

The digital illustration process for this captivating hair oil kiosk will explore its unique design from various angles. One view might showcase the kiosk head-on, highlighting the warm wood and the intricate details of the rattan webbing as it forms wave-like patterns. Another perspective could be a side view, emphasizing the kiosk's depth and the accessibility of the hair oil bottles stored within. A final illustration could capture a bird's-eye view, revealing the full archway and logo placement, while also showcasing the overall tropical vibe created by the design elements. By capturing these different perspectives, the digital illustration will provide a comprehensive understanding of the kiosk's form and functionality, making it a valuable tool.

This display of product abundance assures customers of the quality and care Kalpa puts into every bottle. The kiosk transcends its function of simply selling a product; it becomes a sensory experience, transporting you to a tropical haven and promising the goodness of nature's bounty in every bottle of Kalpa's pure coconut oil.

It's a testament to Kalpa's commitment to tradition, purity, and the timeless connection between coconut oil and the beauty of the beach. It has 3 kiosk displays to order your own personalized hair oil. A large, high-definition display dominates the front, showcasing vibrant images of tropical coconuts alongside current promotions.



Figure 1.6 Final Concept rendered

The ergonomic render of the hair oil kiosk prioritizes both user comfort and product accessibility. The overall height ensures easy browsing for customers of varying heights, with the lower shelves angled slightly upwards for optimal bottle visibility. The touchscreen interface on the front panel is positioned at an arm's reach for comfortable interaction, featuring large, clear icons and intuitive navigation. For staff restocking the kiosk, a hidden compartment at the back provides easy access to the hair oil bottles, keeping the display area clutter-free and maintaining a polished presentation. This ergonomic design ensures a smooth and comfortable experience for both customers and staff, promoting efficient product browsing and restocking within the visually appealing kiosk.

Prototype



Figure 1.7 Physical model of Kiosk

A three-dimensional model is constructed to represent the final product. The frame is built using thin PVC boards, cut into desired shapes and connected at the corners. Rattan webbing, a natural woven material, fills the majority of the surface area, creating a 1:3 ratio between the PVC frame and the webbing. This visual prototype provides a clear representation of the size, shape, and material composition of the final product.

IV. CONCLUSION

In essence, this kiosk transcends mere product promotion. It becomes an engaging hub, fostering brand connection and a more informed shopping experience. In conclusion, Kalpa's personalized hair oil presents a unique and potentially successful offering in the world of hair care. The focus on customization with natural ingredients, coupled with a calming brand identity and user-friendly interface, positions Kalpa to cater to a growing consumer demand for self-care and personalized beauty solutions. This can solidify its position as a leader in the personalized hair oil market. If this product come to market is very successful and fulfil the user needs and satisfaction through transparency and a commitment to creating a truly personalized experience.

V. REFERENCE

- [1]. Nitchara Saeheng, (2014) "The Effect of Kiosks Service Quality and Kiosk Product Quality on Customer Satisfaction," https://ideas.repec.org/p/arz/wpaper/eres2014_194.html
- [2]. Kyung HwaSeo (2020), "A Study on the Application of Kiosk Service as the Workplace Flexibility: The Determinants of Expanded Technology Adoption and Trust of Quick Service Restaurant Customers", Sustainability, 8790; doi:10.3390/su12218790 www.mdpi.com/journal/sustainability
- [3]. A Brief History of the Kiosk, <https://technikmfg.com/a-brief-history-of-the-kiosk/>
- [4]. Gail S. Ayala, Kenneth V. Henderson (1995), "Interactive kiosks and their effects on services marketing: a call for further research", Journal of Retailing and Consumer Services, Volume 2, Issue 3, Pages 191-194
- [5]. Yong, J. (1970) Factors influencing consumers' intention to use self-ordering kiosk in restaurant, UTAR Institutional Repository. Available at: <http://eprints.utar.edu.my/4864/> (Accessed: 20 April 2024).
- [6]. Yulia Vakulenko, Pejvak Oghazib, Daniel Hellströma (2019), "Innovative framework for self-service kiosks Integrating customer value knowledge", Journal of Innovation & Knowledge 4 (2019) 262–268.
- [7]. Berthania Stanley*, Yudha Pratama and Agung Gita Subakti (2023), "The Impact of Self-Order Kiosk and Service Quality on Customer Experience in McDonald's Citra Garden 6 Jakarta"
- [8]. Yi-Shan Lee, I-Wen Yen, and Meng-Cong Zheng, (2023), "Usability Evaluation of Self-Ordering Kiosks in Fast Food Restaurants", Usability and User Experience, Vol. 110, , 299–308, Published by AHFE.
- [9]. Nazi Rastegar, Joan Flaherty, Lena Jingen Liang and Hwan-suk Chris Choi, (2020), "The adoption of self-service kiosks in quick-service restaurants"
- [10]. Dinesh Katre and Mandar Sarnaik, (2010), "Identifying the Cognitive Needs of Visitors and Content Selection Parameters for Designing the Interactive Kiosk Software for Museums" IFIP AICT 316, pp. 168–179, © IFIP International Federation for Information Processing 2010
- [11]. Yuryeon Lee 1, Sunyoung Park 1, Jaehyun Park 2 and Hyun K. Kim 1,3, (2023), "Comparative Analysis of Usability and Accessibility of Kiosks for People with Disabilities", Appl. Sci., 13, 3058. <https://doi.org/10.3390/app13053058>
- [12]. Manisha Guriya, Anand Sharma, (2022), "A Product Design for Information Kiosk for Shopping Malls", Mody University International Journal of Computing and Engineering Research Volume 6 Issue 2, 27 – 32.
- [13]. Chungheon Lee, Jeongwoo Lee, Doha Kim, Inho Kim, Hayeon Song, (2024), "Designing self-ordering kiosk for older adults: Familiarity design focusing on representation, manipulation, and organization", Computers in Human Behavior 156(2):108236, DOI:10.1016/j.chb.2024.108236
- [14]. Will Kenton, (2024) Kiosk: Definition in Retail, History, Types, and



Risks,<https://www.investopedia.com/terms/k/kiosk.asp>

- [15]. Seung-Min Lee, “A Study on User Experience Factors of Public Kiosk”, International Journal of Advanced Science and Technology Vol.112 (2018).
- [16]. BadraSandamaliGaldolage (2021), “Interplay betweenPerformance and ConvenienceinCustomer Choice of Self-Service Technologies”, Current Journal of Applied Science and Technology, 40(10): 80-91, 2021; Article no.CJAST.68922.

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