



INTEGRATION OF SENSORIAL PROPERTIES IN CREATIVE PROCESS DESIGN

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Abstract: Visualize the levers, the tracks to improve the experience of people by questioning each of the activities and / or tasks performed. In a product development strategy, it is highly important to identify the opportunities for improvement and innovation. We highlight the importance of identifying what people do, think and feel. The focus is on the user's actions and emotions before, during and after the observed life situation. Identifying obstacles and problems encountered by people during their interactions with products or services is a crucial step in a product innovation project. We have shown that projecting oneself in the place of people in order to better understand their needs and behaviour is an important step. Acquire as much knowledge as possible about the life context of the future product: what, where, when, how and with whom? Imagine and propose innovative solutions respectful of individuals and nature. The idea book is a collection of the project team's thoughts. Each team member can create their own idea book. The idea book brings together all the creative ideas explored by the project team. Its materialization is completely free. Our approach makes it possible to guide design projects in a responsible philosophy that makes sense for the design team and targeted people.

Key words: design, team, strategy, sensory, innovation, needs.

1. INTRODUCTION

Design plays a crucial role in the process of launching new products to the market, influencing consumer appeal, differentiation from competition and perception of product value. In this paper, we will explore the importance of design in launching new products and how it can influence commercial success, [1]. Launching new products into the market is a crucial process for business success, involving strategic planning, market research and effective communication with consumers, [2-4]. In this report, we will explore the strategies and implications associated with the launch of new products.

Launching new products on the market is a complex and dynamic process that involves multiple strategic steps and decisions. Careful planning, exhaustive research and effective communication with customers are essential to ensure the long-term success and sustainability of new products, [6-8]. By adopting a proactive and adaptable approach, companies can maximize their chances of success in a competitive business environment, [9].

Kitchen appliances have become indispensable in modern life, bringing a number of practical and functional benefits, [10]. However, they also have a significant impact on the human senses, influencing not only how we cook and feed, but also how we experience these daily activities.

The modern design of home appliances can bring added aesthetics to the kitchen and vibrant or neutral colors can influence the mood of the user. Ergonomic and functional forms can improve the visual experience and easy use of home appliances, and smooth, easy-to-clean surfaces can facilitate the maintenance and cleaning of appliances, [7].

Kitchen layout is essential for creating a practical and pleasant environment in which to cook, socialize and enjoy family meals. A well-thought-out design can optimize the available space and improve the efficiency of activities in the kitchen, [5].

Manufacturing the proposed product considered assessing the size and shape of the kitchen to optimise the use of available space. Ensuring fluid circulation in the kitchen, avoiding overcrowding and blocking access to different areas, was one of the constituent elements of the proposed product.

With growing concerns about climate change and protecting the environment, sustainable products are becoming increasingly important in the modern economy. In this article, we will present the proposed

sustainable product design, its importance and its impact on the environment and society. The unic design of a 5 in 1 electrical product is proposed.

2. MATERIALS AND METHODS: MANUFACTURING OF A NEW DESIGN PRODUCT

In order to identify the elements and styles popular among consumers, an analysis of current trends in product design, is made, which is achieved by monitoring trends in related industries and adapting them in the specific context of the product to be launched, [11].

The key to success of a new product is to create an attractive and functional design by developing a design that will attract and captivate consumers aesthetically, [12]. The integration of features and functionalities that provide added value and meet the needs and wishes of users is one of the basic factors in the development of new products, [12-13]. Kitchen layout is a complex process that involves taking into account multiple aspects of functionality, aesthetics, comfort and durability, [14]. Through careful planning and attention to detail, it is possible to create a space that meets our practical and aesthetic needs, while providing a pleasant and satisfying experience during activities in the kitchen.

The existing products on the market have undergone many improvements over time, [15]. An example of the act is the toaster of bread that is present in people's homes, Figure 1, [16].



Fig. 1. Toaster of bread, [16]



Fig. 2. Sandwish maker, [16]



Fig. 3. Microwave, [16]

Attractive and ergonomic design is designed to facilitate use and provide a pleasant user experience. In designing the kitchen is important to be adaptable to changing needs and preferences of users over time. Another example of a home appliance for many people is the sandwich maker, Figure 2. Improving the quality of life is born by providing innovative solutions to existing problems and improving efficiency and comfort. These home appliances are available in different sizes and shapes, from small and compact models suitable for small kitchens or to be taken on trips, to larger and more sophisticated models, suitable for commercial use in restaurants.

Choosing a decorative style that matches personal preferences and the overall design of the house has led to the creation of ever-performing home appliances. An example of a household appliance that is very common in people's homes is the microwave, Figure 3. Microwaves are available in different sizes and capacities, from small and compact models suitable for apartments or offices, to larger and more powerful models, ideal for domestic kitchens or for commercial use in restaurants and cafes. They are a versatile and practical tool in the kitchen, effective for heating debris, defrosting frozen food and quickly cooking various dishes.

The design has a significant impact in the process of launching new products on the market, influencing both consumer perception and the commercial success of the products. By adopting a strategic and innovative approach to design, companies can differentiate their products, attract and retain customers, and achieve long-term success in a competitive business environment. That is why there are many models of coffee makers on the market, Figure 4. A coffee maker is an electrical device designed to prepare coffee by infusion or other extraction methods. There are several types of coffee makers, each with unique features and functions.

Increasing the competitiveness of companies in the market has led to differentiation and valorization of the brand and product portfolio. An attractive role is to contribute to sustainable development and to solving social and environmental problems through innovation and technology. Another very important device in the kitchen of people is the grill. It is found under different designs from different materials, Figure 5. A grill machine is a device that uses high heat from heating elements to prepare food. These kitchen gadgets are well-liked for their ability to quickly and easily produce wholesome and delectable meals for meat, veggies, fish, and other things.

Innovative products play a crucial role in societal progress and in economic and technological development. By continually improving products and bringing new and creative solutions to existing problems, companies can strengthen their market position and help improve the quality of life for consumers and society as a whole.



Fig. 4. Coffee maker, [16]



Fig. 5. Grill, [16]

Innovative products are key elements in the continuous evolution of the market and in meeting the changing needs of consumers. In this paper, we will explore the concept of innovative product, the development process and their impact in society and economy, [14]. An innovative product is a new or improved solution that brings significant benefits to users or the market as a whole. These days, people are searching for experiences as much as technology. In order for a product to be deemed acceptable and desired, it must be built with the end user's wants and wishes in mind, [15]. An ergonomist and a product designer are also involved to help integrate the usage, esteem, and technique triptych into the product design process.

Innovation can be in an existing product, by adding new features or improving existing ones, or it can involve the full development of a new and revolutionary product, the electrical 5 in 1 product.

3. RESULTS: NEW PRODUCT DESCRIPTION

Our article aims to illustrate the difficulty of managing innovation in manufacturing companies, specifically with regard to user-led innovation. Being one of the most innovative products in the industry, the one being offered is new. With the help of the electrical 5-in-1 product, a full kitchen may be progressively lit to suit the owner's preferences thanks to new, safe, and optimal technology, Figure 6. A product that embodies the qualities of a high-quality product, such as functionality and design, ergonomics, uniqueness, authenticity, etc.

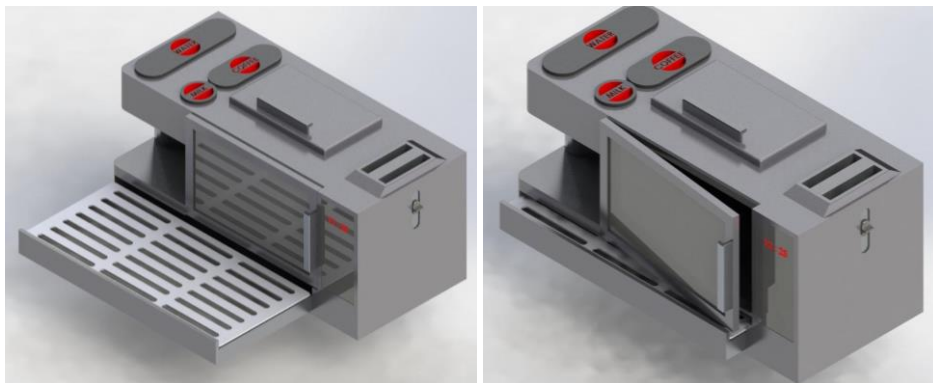


Fig. 6. The „Multifunctional 5 in 1”

In this project, we created a solution for a practical, multipurpose product that fits the needs and wants of consumers and works well in any kitchen. The „Multifunctional 5 in 1” impresses with its ability to integrate four different functionalities into a single unit, all while maintaining a beautiful and small form. The grill enables the creation of a delicious steak, while the microwave oven guarantees rapid and uniform food cooking. The bread toaster gives breakfast a crunchy and flavorful touch, the sandwich maker lets you produce delectable snacks, and the coffee maker delivers the olfactory pleasure of freshly brewed coffee, all within the confines of an energy-efficient appliance. Kitchen appliances are not only practical tools, but also sources of sensory stimulation. From their visual design to the sounds, smells and textures they produce, they influence the way we interact with the environment and enjoy the culinary experience. By understanding and appreciating this sensory impact, we can improve not only our efficiency in the kitchen, but also the enjoyment and satisfaction of cooking and dining.

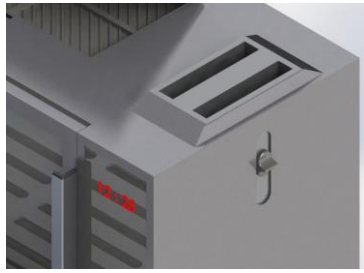


Fig. 7. The „Multifunctional 5 in 1” – Toaster

An equipment used for frying bread is a toaster. It is mostly made up of an outside shell, a control panel, heating components, and a series of arms or chambers that bread slices are placed into. Together, these elements enable the bread to be fried at a high temperature. One of the five appliances in the suggested home appliance, Figure 7, is the toaster. A sandwich maker is a device that makes hot, crispy sandwiches; it's also referred to as a sandwich grill or a toaster maker. Usually, it is made out of two flat or barbecue plates that fit on top of one another and are heated to fry or brown the sandwich's bread and filling.



Fig. 8. The „Multifunctional 5 in 1” – Sandwich maker



Fig. 9. The „Multifunctional 5 in 1” – Microwave

A microwave oven, often known simply as a "microwave", is an appliance used to heat or cook food quickly by exposing it to high-frequency electromagnetic waves, known as microwaves. These microwaves penetrate food, generating vibrations in the molecules of water, fat, and other substances present, which produces heat and heating of food, Figure 9.

Making fragrant, freshly brewed coffee in the comfort of one's own home is made possible by the coffee maker. A more intuitive and enjoyable user experience is offered by the coffee maker's design, which combines cutting-edge features and functionalities like LED illumination, tactile buttons, digital displays, and other contemporary components. The coffee maker's functionality satisfies the varied tastes of customers by enabling the manufacture of a wide range of beverages, Figure 10.



Fig. 10. The „Multifunctional 5 in 1” – Coffee maker

Grill attachments available in a variety of sizes and configurations, ranging from small models ideal for tiny kitchens or travel to larger models suitable for residential or commercial use. These versatile kitchen tools enable quick and healthy meal preparation using a variety of foods. Typical grill device characteristics are as follows: heating elements, to guarantee uniform heat distribution and expedite the cooking process, these can be positioned inside, above, or below the cooking plates. Grease collection tray, a lot of grills come with grease collecting trays, which are simple to remove and clean after usage, to catch the fats and fluids that drip off the food while it's cooking. The primary part of a the electrical product that has direct contact with food while

cooking is the grid. It is essential to getting the right outcomes for cooked food's texture, flavor, and appearance. It is often positioned between the appliance's cooking plates and heating components, Figure 11.

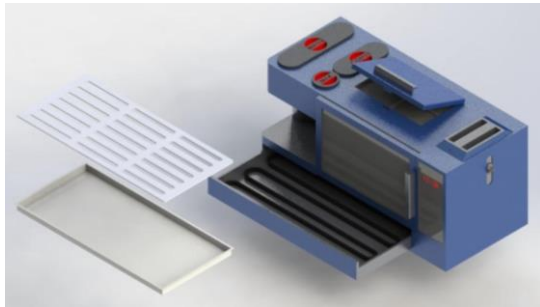


Fig. 11. The „Multifunctional 5 in 1” – Grill

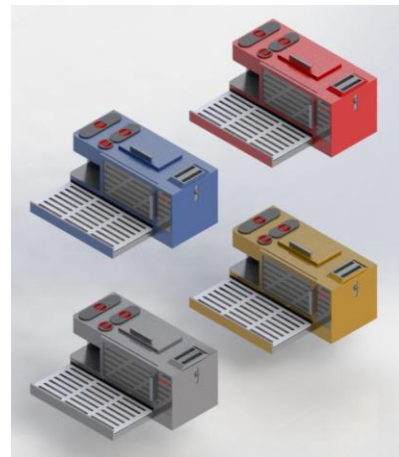


Fig. 12. The „Multifunctional 5 in 1” – different colors

The use of colors, textures and materials that create a pleasant and harmonious atmosphere in the kitchen. Home appliances' color is a crucial component of their design and has a big impact on how they look and feel to the user. The appliance's color can be chosen to complement the kitchen's general design scheme or to express the user's individual tastes. While neutral hues can create an elegant and timeless style, vibrant colors can provide an element of energy and personality to the kitchen area. Whichever color is selected, it is crucial that it blends in smoothly with the rest of the appliance's design and gives the user a visually pleasing and enjoyable experience. There are numerous colors available with the multifunctional 5 in 1, Figure 12.

In order to manufacture the proposed product, it was considered to border an innovative and distinctive design that would attract attention and stand out in front of similar products existing on the market. Being aware of changes in consumer preferences and needs, the focus was on continuing to innovate and adapt design over time. The five appliances do not work simultaneously and none of the appliances affect the other functions of the entire 5 in 1 appliance.

This combination of functions in one appliance gives the user versatility in the kitchen, saving space and costs associated with the purchase and use of several individual appliances. Such products can be ideal for small premises or for those who are looking for effective and convenient solutions for home cooking, being easy to clean. Innovative products play a crucial role in societal progress and in economic and technological development. By continually improving products and bringing new and creative solutions to existing problems, companies can strengthen their market position and help improve the quality of life for consumers and society as a whole.

4. DISCUSSIONS: THE ENVIRONMENTAL IMPACT

During A sustainable product is a product that is designed, manufactured and used in a way that minimizes the impact on the environment and natural resources, [5]. These products are designed to be sustainable, reduce carbon emissions, conserve resources and minimize waste generation, [11].

Awareness and concern about environmental and sustainability impacts also innovation in home appliances. Users are increasingly interested in eco-friendly products with low energy consumption and recyclable materials, which leads manufacturers to develop solutions that reduce the environmental footprint of their products, [11]. Sustainable products are a vital solution in our efforts to safeguard the environment and create a more resilient and accountable society. By implementing sustainable design and production practices, businesses can lessen their environmental effect and encourage more responsible and conscientious consumption, [6]. In addition to being a creative kitchen tool, the "Multifunctional 5 in 1" appliance is a powerful illustration of how contemporary technology can live in harmony with the environment.

In light of the alarming rise in environmental problems, the idea of being "eco-friendly" is becoming increasingly important in contemporary society. In this discourse, we will examine the significance of this idea, its importance, and its implications in the modern world. The term "eco-friendly" or "ecological" refers to goods, services, or activities that are developed or carried out in a way that does not significantly harm the environment. These products or practices are designed to reduce pollution, decrease the impact on natural resources, and promote environmental sustainability and conservation. In the backdrop of expanding

environmental and climate change concerns, the idea of being eco-friendly is becoming more and more significant in contemporary culture. Encouraging and implementing environmentally conscious behaviors is crucial for safeguarding the ecosystem and guaranteeing a sustainable and equitable future for upcoming generations.

Incorporating sustainable materials, manufacturing processes, and end-of-life recycling programs could make the device more environmentally friendly and socially responsible. This could appeal to eco-conscious consumers and contribute to long-term brand loyalty. By focusing on these areas of environment, developers and manufacturers can ensure that the “Multifunctional 5 in 1” remains innovative, relevant, and valuable to consumers in an ever-evolving technological landscape.

5. CONCLUSIONS

In many respects, the human element is vital to the development of products. The product development process can be greatly impacted by the development team's experience and expertise. A skilled and knowledgeable group can offer fresh perspectives, technical fixes, and creative ideas to address issues that arise during the development process. In summary, the human element has a significant influence on the entire product development process, from coming up with creative concepts and solutions to putting them into practice and modifying them in response to customer feedback, shifting market conditions, and user wants. A highly skilled, imaginative, gregarious, and customer-focused group of people can make a big difference in a product's commercial success. The human factor is essential to the innovation of electrical products, influencing every stage of the development and design process.

This project's goal was to design an electronic product that could combine five different electronic devices into one, so achieving the design activity's main objective of creating a "product." In order to incorporate all the components of the life scenario, our exploratory study on an electronic project demonstrated the complementarity of the paper's research during the co-creativity project. Also, our findings indicate that the suggested product has a distinctive design that was developed during the creative process.

An electrocasnic five-in-one is a multifunctional device that offers the user more functionality options all in one handheld device. These appliances are designed to save space in the kitchen and provide versatility in the laundry. These appliances are perfect for kitchens with limited space or for people who want to expand their options without investing in additional separate appliances. They allow for the preparation of a variety of foods on a single device and offer convenience and versatility.

A pleasing aesthetic design has the power to draw attention and make a good first impression on the user. Colors, shapes, and finishing options can be chosen to match the user's unique style and preferences. The sensorial interface design also takes user interface usability and ergonomics into account. Switches, levers, and other control elements have been positioned and sized to be easily accessible and straightforward to operate.

The 5-in-1 multifunctional product is a one-of-a-kind item that provides something exceptional, novel, or distinct from other comparable items available in the market. The presented electrocasnic device offers a novel and promising solution to global problems, resulting in significant user benefits. The product's contemporary and ergonomic design not only enhances its aesthetic appeal but also optimizes its use and manipulation, hence facilitating user comfort. In conclusion, the “Multifunctional 5 in 1” product that has been presented promises to offer a number of noteworthy advantages to users, perfectly combining innovation, efficiency, and practicality in the contemporary world of convenience.

The ability to do more tasks with a single device might lessen the stress and anxiety associated with managing several appliances or gadgets in a household. This simplification of daily life may result in a sense of closure and emotional fulfillment. In conclusion, the 5-in-1 multifunctional device may have a positive emotional impact by facilitating daily living, improving time management skills, strengthening social connections, fostering curiosity, and encouraging creativity. Incorporating sensory properties into product development is essential to producing products that provide a pleasurable and satisfying user experience.

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