



DESIGN AND DEVELOPMENT OF AN IMPROVISED PORTABLE BAR COUNTER

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Abstract. This study presents the innovative "Design and Development of an Improved Portable Bar Counter (IPBC)" as a solution to the limitations identified in existing portable bar counters. Utilizing the ADDIE model, the research emphasizes the need for essential features, such as a dedicated storage cabinet and a wine glass rack, which are often lacking in commercially available options. A comprehensive cost analysis ensures economic feasibility.

The proposed IPBC integrates key features such as an integrated cabinet, a dedicated wine rack, enhanced mobility with wheels, increased dimensions for added space, and the use of waterproof materials for easy maintenance. The development process follows a systematic approach, including conceptualization, material procurement, construction, and finalization.

The research successfully achieves its goal, introducing the IPBC as a groundbreaking tool applicable to education and the food and bar industry. In a Food Technology course, it serves as a practical teaching aid for hands-on experience in mobile catering setups, event planning, service design, and food and beverage pairing. Given the common inclusion of event planning and management in Food Technology curricula, the IPBC becomes a valuable asset for practical demonstrations and hands-on learning, enabling students to organize and execute beverage service at events, both indoor and outdoor. In the food and bar industry, the IPBC proves to be adaptable and flexible, offering increased service capacity and cost-effectiveness compared to permanent structures. Its adaptability to space constraints, versatile design, and potential for effective brand promotion highlight its relevance in optimizing service efficiency and creating memorable customer experiences. The IPBC represents a strategic and practical solution for businesses seeking to expand their reach and elevate service offerings in the dynamic food and bar industry.

Keywords: Barcounter, Built-in cabinet, Education, Improved and Portable

1. Introduction

In every food and drink service industry, bar counters are a necessity. Primarily, bar counters are used to serve food and drinks at home, at restaurants, or other dining places. There are several types of Bar Counter designs such as the corner bar, parallel bar, kitchen bar, pull-down bar, pool house bar, partitioned bar, barn, and pallet bar. These types of Bar counters are



attached or fixed and they cannot be used for outdoor activities or for simulation activities. Hence, researchers and developers continue to improve existing designs of Bar Counters. One recent development was the production of portable bar counters, which are usually folded and carried like an “attaché case”. Still, these newly conceptualized portable bar counters need to be improved. Hence, this study about “Design and Development of an Improvised Portable Bar Counter” is proposed by the researcher.

The study focuses on the development of an Improvised Portable Bar Counter, a novel prototype designed to offer enhanced convenience and functionality. This innovative design addresses the need for a flexible and easily deployable solution, making it suitable for various settings. The key features of this prototype include a built-in cabinet and a detachable hanging glass rack, both of which contribute to its effectiveness as a simulation tool. The convenience of the Improvised Portable Bar Counter lies in its portability, allowing users to set up a functional bar station in any location. This attribute is particularly advantageous for students studying bartending, whether in a school setting or as part of an extension program. The portability enables practical and hands-on training experiences, offering students the opportunity to practice and refine their bartending skills in different environments.

The prototype gains additional usefulness by having a built-in cabinet. This feature offers space for storing bar necessities, like cocktail mixes, cutlery, and other required equipment. The cabinet makes the bar setup more efficient by making sure that everything required for serving is in a convenient and orderly manner. Additionally, the glass rack that can be detached and hung provides a useful feature. This part not only makes the prototype more convenient overall, but it also simulates a true bar setting. Students can practice handling glassware and learn the value of presenting the bar setup in an orderly and eye-catching manner.

The outcomes of this study offer a multitude of advantages for various stakeholders. Students and trainees in Bar Tending stand to benefit by gaining the convenience of using portable equipment for their activities. Teachers and trainers in the same discipline can access innovative technology to augment their teaching methods. Community-based and industry practitioners in Bar Tending or catering can enhance their daily job activities by utilizing portable bar counters, thereby increasing overall efficiency. The Academic Affairs Office may view the study's findings as valuable instructional material for Bar Tending and related courses. The Extension Services Department can utilize the research material for community outreach and education initiatives. The NEUST Production Office has the potential to receive a valuable educational technology material for patenting and commercialization. The NEUST-CIT Administration stands to benefit by acquiring an inexpensive, state-of-the-art Portable Bar



Counter for instructional and assessment center activities. The researcher gains the opportunity to impart technological innovation directly to the target end-users, while future researchers can use the study's findings as a guide and inspiration for exploring additional technology innovations in educational enhancement.

2. Methodology

This study will utilize the developmental research design. According to Ulrich & Eppinger (2015), developmental research design in the context of product development refers to a systematic and iterative approach used to create, refine, and enhance products over time. The design process in product development that involves continuous cycles of prototyping, testing, and modification is a dynamic and iterative approach aimed at refining and optimizing a product to meet specified requirements and user needs. This iterative cycle is a fundamental aspect of the developmental research design applied in the field of product development.

Also, this study utilized the Analysis, Design, Development, Implementation, and Evaluation (ADDIE) model as its research framework. The ADDIE model is a systematic instructional design framework used to guide the development of effective learning experiences and training programs (Molenda, 2003). The research took place at the General Tino St. Campus of the College of Industrial Technology, Nueva Ecija University of Science and Technology, specifically within the first semester of the academic year 2023-2024. This timeframe facilitated an in-depth investigation into the subject matter, with a particular emphasis on the design and development of the Improvised Portable Bar Counter.

3. Results and Discussion

3.1 Designing and developing the Improvised Portable Bar Counter

The designing and developing phase of the IPBC followed the stages of the ADDIE model, However, the researchers modified it to suit the needs of the study which is to design and develop an improvised portable bar counter.

3.1.1 Analysis Phase

The analysis phase of the study is when the needs, goals, and requirements for the product has been identify and analyzed. Understand the market, student or instructor preferences, and any constraints that may impact the development process.

During the analysis phase of the study, the researcher focused on examining the features of existing portable bar counter available in online market. Through careful observation, the researcher identified several common characteristics of these portable bar counter.



Initially, it was observed that the physical structure of the commercially available portable bar counter is relatively small, resulting in constrained space. Some models are constructed from plastic, and there is also an absence of wheels, making them unmovable. Furthermore, there is a notable absence of essential features such as a dedicated storage cabinet for liquor and tools and a wine glass rack.

In addition to meticulous examination of the features inherent in extant portable bar counter, the researcher also conducted a comprehensive cost analysis for the development of the IPBC. This analysis aimed to evaluate the totality of expenses entailed in the conceptualization and production phases of the IPBC, ensuring that the project remained economically feasible as shown in table 1.

Table 1 IPBC’s Total Costing

Materials	Qty.	Unit.	Unit Price	Amount
Angle bar 10 ft	2	pc	₱ 340	₱ 680
Angle corner (angular)	8	pc	₱ 30	₱ 240
Ball corner flat big	4	pc	₱ 30	₱ 120
Ball corner round big	4	pc	₱ 50	₱ 200
Blind rivet	1	1bx	₱ 150	₱ 150
Dormer (bala ng barena)	1	pc	₱ 60	₱ 60
Food pan (ice pan)	2	pc	₱ 210	₱ 420
Handle big with plate	2	pc	₱ 120	₱ 240
J- clip 1/2 12'	4	pc	₱ 65	₱ 260
Paint black 1lt	1	pc	₱ 145	₱ 145
Piano hinge	1	pc	₱ 120	₱ 120
Plywood 1/2	2	pc	₱ 550	₱ 1,100
Rubber slice	1	roll	₱ 150	₱ 150
Rugby glue	1	btl	₱ 40	₱ 40
Table Cover	3	m	₱ 55	₱ 165
Tongue n groove 10ft	2	pc	₱ 350	₱ 700
Twist lock	8	pc	₱ 105	₱ 840
Washer	1	bx	₱ 110	₱ 110
Wheel PVC	4	pc	₱ 25	₱ 100
Wood screw	1	bx	₱ 130	₱ 130
TOTAL				₱ 5,970

3.1.2 Design Phase

Industrial research is defined as a systematic and planned investigation with the explicit purpose of acquiring new knowledge and skills for the development of innovative products, processes, or services, or for effecting significant enhancements in existing products, processes, or services (Lawinsider.com, n.d). In this phase, the researcher designed their device in contrast with the present attributes of portable bar counter but with the same functionality and additional features. The conceptual design of the improvised portable bar counter was presented in orthographic and isometric projection as shown in figure 1. It was drawn using the Automatic Computer-Aided Design software for accurate measurements.

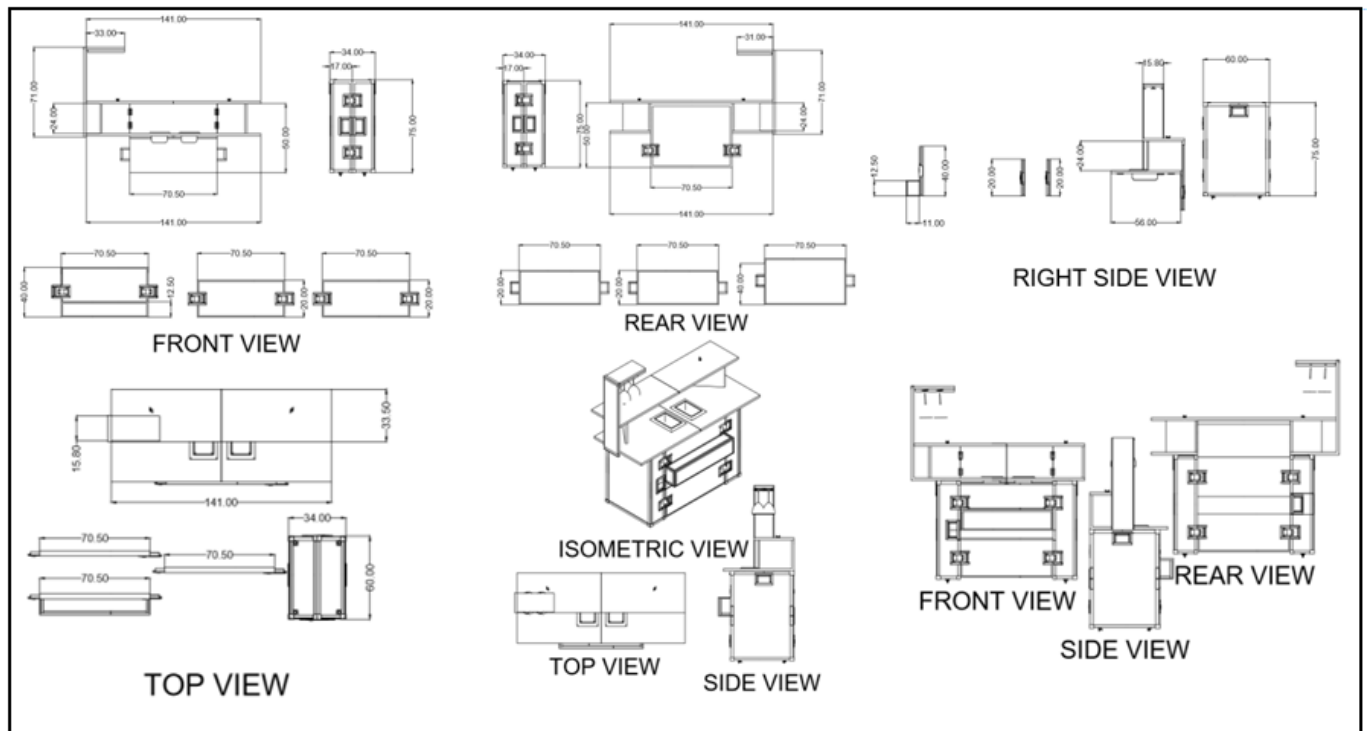


Figure 1 Orthographic and Isometric Projection

The orthographic projection of IPBC is the representation of the top view, front view and side view which means that the object’s lines are perpendicular to the viewing plane. On the other hand, the isometric projection of the IPCB is the axonometric projection that represents a three-dimensional object by tilting it at 30 degrees from the horizontal plane which allows for a more realistic and visually appealing representation of objects.

In summary, the design of the improvised portable bar counter incorporates several key features: an integrated cabinet for the storage of liquors and tools, a dedicated wine rack for



the organized storage and easy retrieval of wine glasses, enhanced mobility facilitated by the inclusion of wheels, increased dimensions to provide more space, and the use of waterproof materials for easy maintenance and cleaning.

3.1.3 Developmental Phase

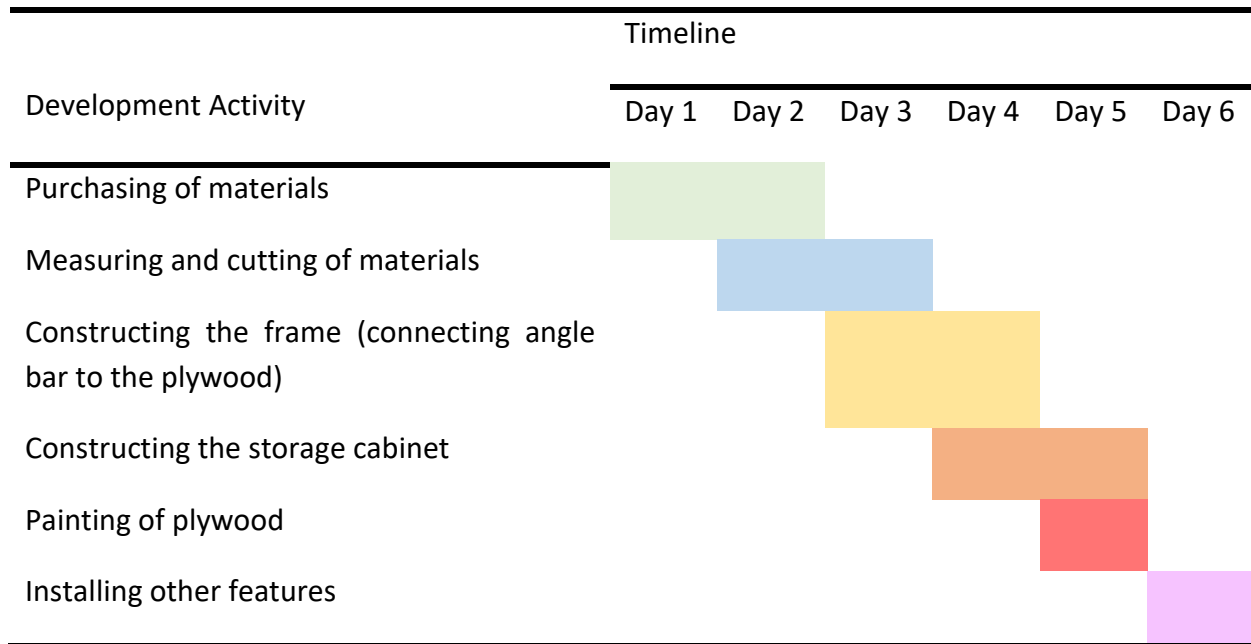
Prototyping assumes a pivotal role in the domain of product development, yielding substantial advantages for various reasons. It provides a means for testing and refining product concepts prior to full-scale production, thereby ensuring congruence with the envisaged vision. The incorporation of prototypes facilitates the solicitation of early user feedback, serving to minimize design flaws and enhance overall user satisfaction. Furthermore, the practice of prototyping significantly contributes to risk mitigation by proactively identifying and rectifying issues in the nascent stages of development, mitigating the potential for costly modifications during subsequent phases. Prototypes, as effective communication tools, foster collaboration and engender shared understanding among diverse teams and stakeholders. The iterative nature of prototyping engenders continuous refinement in both design and user experience, thereby promoting efficiency in terms of both cost and time. Additionally, prototypes serve as invaluable instruments for market testing, affording critical insights prior to the final product launch. In summation, the formal integration of prototyping is foundational to a methodical and efficacious product development process

The development phase of the study marked the practical construction of the Improved Portable Bar Counter (IPCB). Throughout this phase, the researcher demonstrated precision by meticulously choosing suitable materials that harmonized with the envisioned design of the animator's equipment. Attention to detail was a priority to guarantee that the IPCB would conform to the specified requirements and fulfill the intended functionality.

For effective management and oversight of the Improved Portable Bar Counter's (IPCB) development, the researchers employed a Gantt chart, depicted in Table 2. A Gantt chart is a widely utilized graphical representation of a project schedule, presenting a bar chart that outlines the commencement and conclusion dates of various project elements, encompassing resources, planning, and dependencies (Grant, 2022). This visual representation of the project's timeline and crucial milestones served as an invaluable tool for organizing and monitoring the construction process. Consistent reference to the Gantt chart allowed the researchers to ensure the timely completion of each task within the designated timeframe and maintained the overall project on schedule.



Table 2 Gantt Chart of IPBC’s Development



The development of IPBC starts from the conceptualization of the design, buying of materials needed during its assembly, measuring, and cutting the materials, attaching the wood frame components and the angle bar and other materials, constructing the storage cabinet and painting the device, and installation of wheels and wine rack. Images are taken when the IPBC is being developed as shown in figure 2.



Figure 2. IPBC's Development

Throughout the developmental phase, the researcher consistently demonstrated a high level of expertise and meticulous attention to detail. Her dedicated efforts were centered on the assembly of the Improved Portable Bar Counter (IPBC), adhering precisely to the projected design and ensuring the accurate integration of components. The researcher's technical proficiency and extensive knowledge played a crucial role in achieving the desired outcomes, resulting in the development of a functional and stable portable bar counter. The tangible result of the researcher's work is visually presented in Figure 3, depicting the fully developed Improved Portable Bar Counter.



Figure 3 Improved Portable Bar Counter

In summary, an Improved Portable Bar Counter can serve as a valuable and practical tool in especially in Food Technology course, offering hands-on experience in mobile catering, event management, service design, and customization for specific needs within the food and beverage context. Furthermore, the relevance of a portable bar counter in the food and bar industry is rooted in its ability to enhance flexibility, increase service capacity, cater to diverse events, provide cost-effective solutions, promote brand identity, adapt to space constraints, offer design versatility, and contribute to efficient workflow. This versatility makes portable bars valuable assets for businesses seeking to expand their reach and elevate their service offerings. Its design features and customization options contribute to its adaptability and potential applicability in diverse settings.

4. Conclusions

In conclusion, the research project effectively accomplished its goal of creating and enhancing the Improved Portable Bar Counter (IPBC) as a groundbreaking tool for teachers, students and food and bar industries. In the context of a Food Technology course, the application of an Improved Portable Bar Counter (IPBC) offers multifaceted benefits. Serving as a practical tool, the IPBC becomes instrumental in teaching students about mobile catering



setups, allowing them to experience firsthand the intricacies of setting up and managing beverage service in diverse locations. Given the common inclusion of event planning and management in Food Technology curricula, the IPBC becomes a valuable asset for practical demonstrations and hands-on learning, enabling students to organize and execute beverage service at events, both indoor and outdoor. Furthermore, the IPBC contributes to lessons on innovation in service design, with students exploring the counter's design, mobility, and features as essential components of efficient and effective beverage service. As an educational tool, it provides a platform for experimentation with different setups for serving beverages alongside specific food offerings, enhancing students' understanding of food and beverage pairing. Additionally, the construction and customization aspects of the IPBC align with practical skills development, allowing students to gain hands-on experience in building a functional and aesthetically pleasing mobile beverage service station. The IPBC thus becomes a tangible link between theoretical knowledge and real-world applications within the dynamic realm of food technology.

A portable bar counter holds significant relevance within the dynamic landscape of the food and bar industry. Its adaptability and flexibility make it an invaluable asset for businesses seeking to cater to diverse events in various locations. Whether deployed at weddings, corporate functions, or seasonal festivals, portable bars offer unparalleled event flexibility, allowing businesses to extend their services beyond fixed establishments. Moreover, these mobile setups contribute to increased service capacity during peak hours, reducing wait times and enhancing overall customer satisfaction. For catering services and businesses involved in event management, portable bar counters become essential tools, facilitating on-site beverage services at off-site locations. The cost-effectiveness of portable bars compared to constructing permanent structures is noteworthy, making them an efficient investment for businesses participating in multiple events or operating in various settings. The adaptability to space constraints, versatility in design, and the potential for effective brand promotion further underscore the relevance of portable bar counters in optimizing service efficiency and creating memorable customer experiences. In essence, these mobile setups exemplify a strategic and practical solution for businesses looking to expand their reach and elevate their service offerings in the food and bar industry.



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