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Designing A Spice Storage Area With Additional Compartment Features to Support The Needs Of Housewives

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ABSTRACT

East Javanese cuisine is a type of traditional cuisine originating from East Java. East Java cuisine has a variety of flavors, from savory to sweet and spicy. Spice storage is needed for kitchen needs in cooking activities. This design aims to produce a prototype of the spice storage concept to facilitate cooking activities for East Javanese cuisine. The goal was found because the spice storage has no special product for storing spices in East Java cuisine and this problem occurs, so a spice storage is designed with a home kitchen. The design of spice storage is designed with additional features as needed such as sachet holders and bottle holders. The design method is made with the UCD (User Centered Design) method with this method carried out thoroughly starting from the target audience to the product test stage and solutions to users based on data that has been collected. Previous data was taken from interviews, observations, and found data from journals and books. Analyze the results of observations and interviews that have been conducted. In the design process from the ideation stage to the product finishing stage. The results and data analysis, obtained that the spice storage case study of East Java cuisine can support the needs of housewives.

Keywords: Design, Spice Storage, Cuisine, and East Java.

Introduction

Every year the population continues to increase, especially in big cities. The increasing population will have an impact on the problem of limited land for residential areas. The dwelling serves as a shelter and a place to live. Shelter is very important to protect users from harm. Because every human being has their own needs for a place to live in life for daily activities. An important room in the residence is the kitchen whose function is to meet food needs. The kitchen is one of the rooms that is used to prepare food and cook. Cooking is a routine that is done every day. As the opinion Salim (2014) Cooking activities are a category of work that can be rated as half weight. The kitchen is a room that must be in every house to meet food needs. Traditional food is often referred to as food that shows the character of each region and the values that exist in the region [2]. Local cuisine also reflects the history and culture that is an attraction for tourists. One of the areas that has potential culinary tourism destinations is East Java [3]. East Javanese cuisine has many specialties of foods that are familiar in Indonesia, such as rawon, madura satay, chicken soup, lontong balap, rujak cingur, tofu tek, and many more. East Javanese cuisine has a rich and diverse flavor, ranging from savory to sweet and spicy. Spices used for East Javanese cuisine include garlic, onion, candlenut, coriander, galangal, ginger, chili, and several other types of spices [4], [5].

The main facilities found in the kitchen in cooking with the main spices characteristic of East Javanese cuisine have the purpose of supporting the comfort of its use. One of the tools discussed here is the storage of spices. Generally speaking, the design of the spice storage bin is based on the needs of current users. However, with the development of technology and lifestyles have become more diverse. Therefore, this diversity may be the background for the development of the current spice storage room design. The main facility in the kitchen is the storage of spices, which of course functions as storage for cooking ingredients that will be used by mothers when cooking in the kitchen. In carrying out cooking activities, it is necessary to have a spice storage place to take the spices needed. Another example of cooking activities is looking for spices needed in the cooking process. In cooking activities ranging from preparing food ingredients to cleaning cooking utensils [6]. Cooking is a lifestyle as said by Yunidar et al., (2018) which is done by humans who make users who determine the user's desires, desires for their goals to form a lifestyle starting from the way of life, the way of thinking, etc. According to the results of observations, cooking activities require spices with the main ingredient characteristic of East Javanese cuisine. The spice storage area is important for storing kitchen spices so that the kitchen is neatly organized and also makes it easier to find the spices you need. One of them is a kitchen located in Graha Semeru Housing, Lumajang, Lumajang District, Lumajang City, East Jawa [8]–[12].

The case study in this study is the design of a spice storage place in the kitchen in Graha Semeru Housing. From this case study, there is a problem that there is no place to store spices and labels where spices are easily faded. The problem that you get when cooking complains that you have difficulty when cooking because it takes a very fast time to be in the kitchen. The writing of the label where the spices are stored interferes with the user's comfort when cooking because it fades. The average user who owns a house in Graha Semeru Housing often buys

sachet and renceng spices that are still scattered or can be directly put in a jar. This is a little time-consuming because with the needs in the kitchen, it doesn't take long. Therefore, the need and addition of functional aspects for the storage of spices in Graha Semeru Housing [13]–[15].

Picture *Error! No text of specified style in document.***.** Home Kitchen

Research Methods

The research method used in the design of this spice storage area uses a qualitative method, because in this mixing the qualitative research is based on the phenomenon that occurs, namely the limitation of the area of the kitchen room. In the research data collection technique carried out, there are several stages, namely direct observation and documentation to the object being studied, namely the storage area of East Javanese cooking spices [16]–[20].

At the design stage, the method used is the user-centered design (UCD) method. This method is quite commonly used in various design processes, because it prioritizes potential users or certain groups that are targeted. In this method, various data regarding the user's problems, habits, needs, and preferences will be collected and used as the main consideration in making design decisions. This is so that the resulting design can be the right and innovative solution to the problem or topic raised [21]–[25].

Results and Discussion

Planning Process

Needs Study

In this design, there are several parameters that must be met so that the design is in accordance with the needs and goals, including the following:

1. Minimalist design in the selection of minimalist designs used in the mixing of the main spice storage area typical of East Java already has various forms that refer to products such as Tupperware, Ikea, Pinmoo and Youware.
2. It is necessary to add features to the storage area of the main spices typical of East Java to support user needs.
3. The needs of users are needed to store cooking kitchen spices that are often used in East Javanese cuisine.
4. There are 6 spices that are often used in East Javanese cuisine, namely onion, garlic, coconut sugar, granulated sugar, red chili, and coriander.

User Charm

Segmentation

a. Mother 1

Mrs. Bella, 29 years old, is one of the housewives who needs products that are easy to store and neatly arranged in the kitchen. This lintang mother likes to collect kitchen spices and often cooks food in the kitchen every morning and night for family meals. Mrs. Lintang's daily need is to like to store kitchen spices if they run out, it takes time to replenish the spices that have run out. Mrs. Lintang also keeps a few bottles for food seasonings and keeps them in the closet.

b. Mother 2

Mrs. Vanilla, 30 years old, the most important kitchen needs in the kitchen are making coffee and breakfast for my husband and son. Mrs. Vanilla also likes to collect cooking spices ranging from sachet seasoning and cooking dishes that are easy to cook and quick to serve.

c. Mother 3

Yunda's mother, 27, has just gotten married and has no children. What is done in the kitchen morning and evening but Mrs. Yunda does activities in the kitchen not long after, cooking food and preparing for her husband. The need in the kitchen to cook also cooks dishes that are easy to cook and quickly served, it's just that food that is often cooked with very few spices because it does not collect a lot of spices, only a few spices that are often used.

Target

The target housewives above are like Mrs. Bella because she is one of the housewives who needs products that are easy to store and neatly arranged in the kitchen. Bella's mother likes to collect kitchen spices and often cooks food in the kitchen every morning and night for family meals. Mrs. Lintang's daily need is to like to store kitchen spices if they run out, it takes time to replenish the spices that have run out. Bella's mother also kept some bottles for food seasonings and kept them in the closet.

User Charm

Figure 2. User Charm
(Source: Author's Data)

5W+1H

1. *Who*
   The main users in this plan are housewives who *have kitchens* (Graha Semeru Housing, Lumajang, East Java).
2. *What*
   The addition of functional aspects to the storage area *of the main* spices typical of East Java to support the needs of users.
3. *Why*
   The combination of this product that is owned does not have the features that users need as an added value for users.
4. *Where*
   Products where spices are stored can be used in home kitchens (Graha Semeru Housing, Lumajang, East Java).
5. *When*
   The product where the kitchen spices are stored is used when cooking in the kitchen.
6. *How*
   The use of this spice storage is the same as the use of other spice storage places, only there are some additional new features as a complement.

Parameters

Parameters	Necessity	Excess
Function	Sachet seasoning drawer	It is expected to be a storage place for sachet spices as well as placement does not take much time because it uses a drawer system. Which is filled according to the needs of the sachet seasoning

	Spice jar holder	The storage space for the spice jars that have been provided is the size of the jar in general.
	Sauce bottle holder	The bottle storage space can be adjusted according to your needs. So that it looks neat and not messy.
Design	Modern	A modern design that makes the product look simple yet functional.
	Minimalist	The minimalist design that makes proudk simple and uses only the necessary components.
Material	Dutch teak wood  **Figure 3.** Dutch Teak Wood (Source: Artikelrumah.com)	- Strong - Light - Easy to mold
	 **Picture** Error! No text of specified style in document.. Wood Finishing (Sumebr: Artikelrumah.com)	Durability is quite high Glossier colors

Function Aspects

Material Analysis

In determining the material to be used in the spice storage that must be met, among others, it is easy to clean if it comes into contact with kitchen spices. The material used as a storage place for spices uses Dutch teak wood and is given a finish so that it is easy to clean. And the material for the drawer cover uses triplek.

No.	Wood	Parameters	
		Types of wood	Weight
1.	Teak Wood	Hard	Heavy

Figure 5. Teak Wood
(Source: Yuniarto.blog)

2.	Dutch Teak Wood	Soft	Light

Figure 6. Dutch Teak Wood
(Source: Artikelrumah.com)

Teak wood is often used in East Java and the main producer is located in Bojonegoro. It is known that teak wood is expensive and the weight of the wood is heavier, so the material that will be used to be applied in the spice storage area is Dutch teak wood.

Construction System Analysis

Construction system (Features)

In determining the shape of the spice compartment that must be fulfilled is operational in picking up spices. With the considerations that must be met with the user as follows:

a. The spice construction system is made at an angle to make it easier to take spice jars in the rack.
b. The construction system on the drawers is made with *sliding doors*.

Product Component Analysis

a. In determining the item used for the container where the spices are placed is a jar made of glass.
b. The size of the spice container used is 8cm x 8cm x 12cm for large sizes while for small sizes it is 6cm x 6cm x 10cm.

Operational Analysis

a. The spice holder is tilted because it is to make it easier to pick up spices when cooking
b. Drawer operations are like drawers in general.

Product Placement Analysis

The placement of products where spices are stored uses *zoning* and *blocking*. This product will be placed in the area of the work zone on cooking.

Visual Aspects

The color that characterizes the typical East Javanese wood carvings is yellowish-brown. The famous carving in East Java comes from Mojokerto, Majapahit carving

SWOT Analysis

In designing the design of the spice storage area, S.W.O.T details are needed to determine the quality of this product. The following is S.W.O.T on the product where the spices are stored:

Strength

A storage place for spices for East Javanese cuisine and has an additional function. The components contained in this spice storage have the main ingredient of Dutch teak with a finish to prevent mold on the wood.

Weaknesses

Because the spice storage place has a special target for East Java housewives.

Opportunity

A spice place designed for East Javanese cuisine with a special place for spices that are often used in East Java.

Threats

The sale of this product is temporary because it is according to the needs that are desired now.

Design Validation Results

Design Description

The product is designed as a spice storage place or it can be called a kitchen spice storage rack. This kitchen spice storage bin adds several features to make it easier for users to use the spice storage area. At the same time, users can also use features that do not yet exist from some existing products. In addition, this product also has a feature that users can add their own accessories. The color used is monochrome color, which consists of black, white, gray and brown. The color combination has an elegant, modern and dynamic impression. This product is intended for mothers.

Product Dimensions

H x H x H: 4750mm x 90mm x 320mm

Product Material

Wood, as the main material in making frames. Glass, as a material for spice jars. Plywood, in the drawer using a sliding door.

Product Reference

The size of the spice storage bin follows the ergonomic size of the kitchen. The color of the spice storage area is in accordance with the typical colors of East Java.

Product Mechanism

Using *a sliding door system* on the spice drawer.

Product Function

To support the needs of housewives in East Java by using a kitchen spice holder that will be filled with the needs of spices that are often used in East Java.

Mind Mapping

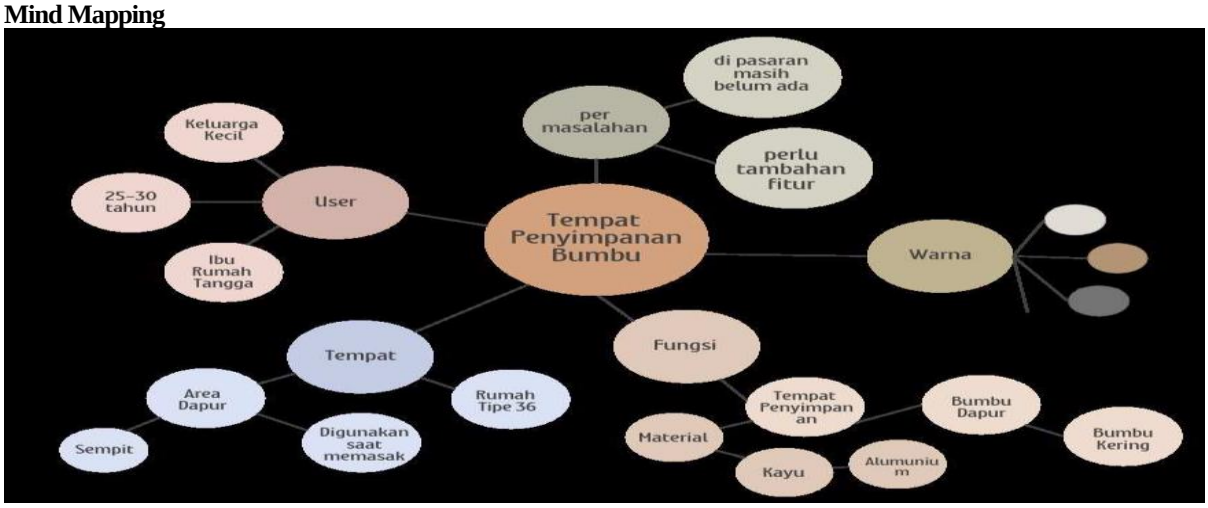

Figure 7. Mind Mapping

Mood Board

Here is a *Mood Board* made according to the theme of designing porduk for spice storage.

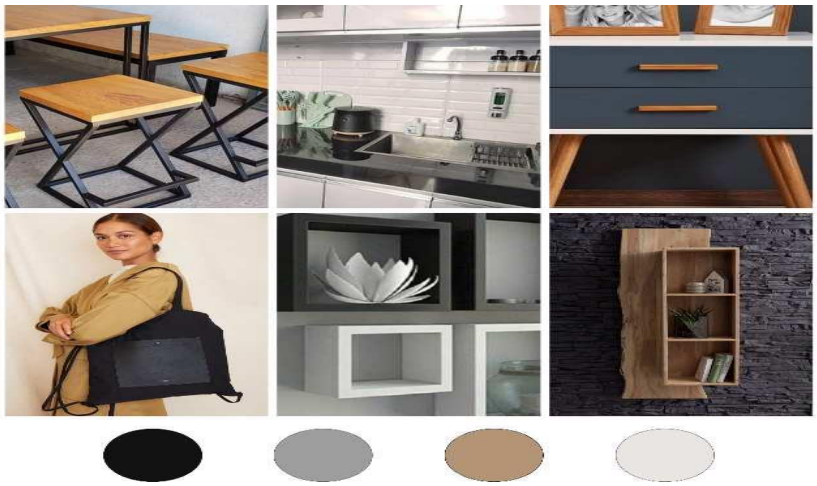

Figure 8. Mood Board

User Board

Figure 9. User Board

TOR (Term of Reference)

Some aspects of the design that have been in the previous chapter, then will be bolted T.O.R *(Term of Reference)*. There are several components in the T.O.R, namely design considerations, design limitations and design descriptions. This is determined as a benchmark for designing the design of kitchen spices storage so that the resulting product can be a good problem solving.

Product Description

The storage area for spices in this design is intended for housewives who process typical East Javanese food. Equipped with several additional features to make it easier when cooking in the kitchen. The product uses wood and still shows fibers.

Design Considerations

This product is made with the target market of housewives who process East Java food. Makes it easy to store the sachet seasoning in the spice drawer. It has a special design for spices that are often used in East Javanese cuisine. The shape used corresponds to the shape of the stored jar.

Design Limitations

The design of this spice storage area is designed for cooking spices that are often used in East Java, namely coconut sugar, salt, coriander, red chili, onion, garlic, keluak and petis. The function applied is the addition of a function for the addition of a sachet drawer, a place for kitchen bottles. The material used has the character of a type of wood that is light, and soft like Dutch teak wood. The finish is used by wood layers to protect the wood. The color of the wood that characterizes East Java is yellowish-brown. The product to be made is a product where spices with a size not exceeding 50cm in length x 30cm in width x 60cm in height with each compartment must be able to contain at least 4 types of spices. Each small jar has a size of 6cm x 6cm x 10cm and a larger jar has a size of 8cm x 8cm x 12cm.

Benchmarking Procduct

Before the process of making a spice storage area, there is research on the spice storage products that are already on the market. Considering in terms of size, shape and design *of the main frame.*

Figure 10. Benchmarking Product
(Source: Author's Data)

Planning Process

3D Sketching

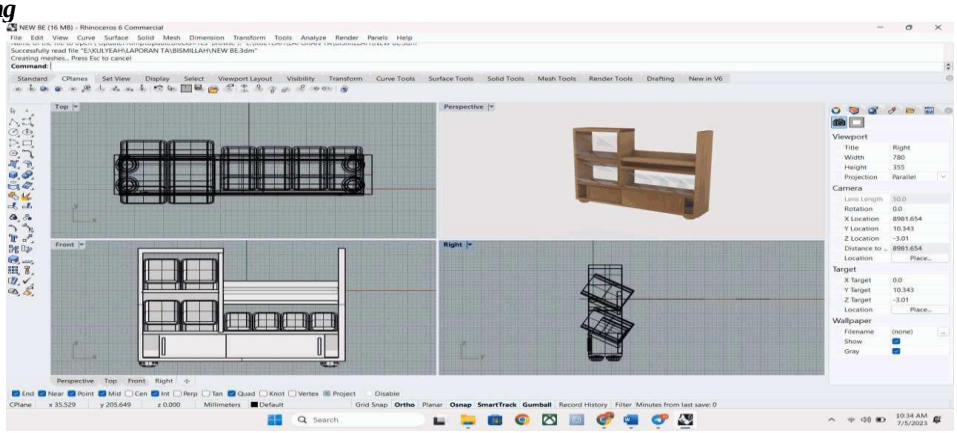

Figure 11. Sketch of the Draft

Final Sketch

Figure 12. Final Sketch
(Source: Personal Documents 2022)

Technical Drawings

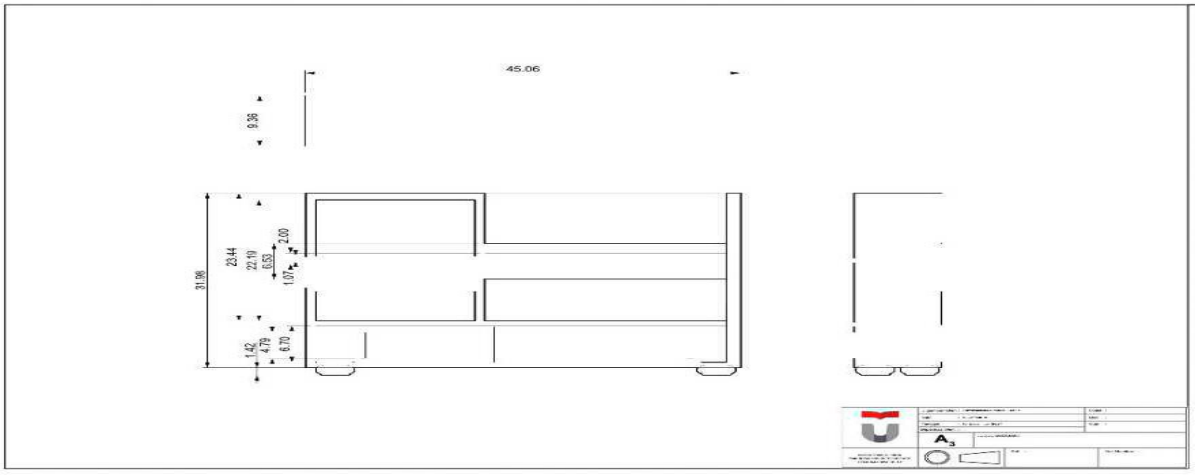

Figure 13. Technical Drawings
(Source: Personal Documents 2022)

***Image* Exploded View**

Picture 1. Image Exploded View
(Source: Personal Documents 2022)

Final Product

Picture 2. Picture of the kitchen spice holder

Validation Results

Literature Validation Results

The following are the results of validation of several aspects of integration based on literature studies:

User Validation Results

The user validation method that has been carried out by testing kitchen spices storage that is often used by East Java users, the following are the results of the trial presented in 3 points:

1. The feature is in accordance with the needs of the user, but the user has complaints about the *sliding door* because to open it requires two hands and is a bit hard to open it.
2. The system on the bottle holder is quite easy for users to store bottles that are not too large or small. It's just that there are some bottles that do store not bottles but large sachets containing 1 liter.
3. The placement of the jar is quite easy for users to take the spice jar and is equipped with a spoon in the kitchen spice jar.

Conclusion

In this design, the author designed a design on the spice storage area intended for housewives with typical East Javanese cuisine. Here are some of the problem solving in the design carried out, including the design of a product in the form of a storage place for kitchen spices for East Javanese cuisine, produced with wood materials with finishes to protect wood. The design of the kitchen spice storage area has several additional features to make it easier to use as a store for kitchen spices, especially in typical East Javanese cuisine. Based on the results of research and discussion regarding the development of a spice storage design, there are several suggestions that can be made by the next researcher so that the product can be designed better, namely the use of spice containers for East Javanese cuisine. Addition of additional features to make it easy to use by its users. The selection of components used prioritizes product comfort. Such as the use of the most important additional features.

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