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MOVAA - A MOBILE FASHION TRUCKS

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ABSTRACT

Street market plays a significant role in the Malaysian's economy. The street markets reflect a piece of the unique Malaysian culture for they portray the buying and eating preferences, interaction patterns and leisure activities among various ethnic groups. Nevertheless, street market vendors face many challenges such as safety and cleanliness of their stalls, the confusing legal and regulatory aspects, and many more. Today, as the truck vendors are getting popular in Malaysia, it is an opportunity for street vendors to explore various advantages offered by businesses using trucks. This research aims to develop Mobile Fashion Trucks. There are three (3) objectives of this study, to identify existing elements that needed for the mobile vendor in apparel retail, to study the existing spatial layout for vendors' truck, and to identify the user preference on features for a display area in the vendors' truck. Three methods are adopted to achieve the above-set objectives; 1) line-up study on existing mobile fashion trucks; 2) checklist on the spatial layout of the truck, and 3) questionnaire survey. The findings are that three (3) elements are required to upgrade for a mobile fashion truck: (i) exterior (fast set-up), (ii) interior (spatial layout) and (iii) display features. The design model was developed based on the findings of the three (3) elements. Design ideas visualising the best image for the mobile fashion trucks were continually developing.

Keyword: *Mobile Trucks, Fashion, Malaysia*

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RESEARCH INTRODUCTION

In the era of global trade, street vendor plays a vital contributor to the urban economy. Street trade also improves the liveliness of urban life by offering affordable, accessible goods and services to urban consumers. Low barriers to entry, limited start-up costs, and flexible hours are some of the factors that draw street vendors to the most wanted informal occupation. However, street vendors face many challenges in terms of keeping their stall safe and clean for their customers. The legal and regulatory environments for street vending in many cities are both confusing, and licenses are not easy to acquire, thus leaving many street vendors vulnerable to harassment, confiscations, and evictions. Previous research found that even vendors with valid license face difficulty in finding a secure vending location without getting their goods seized. Street vending can be either fixed at the same location in the forms of a stall or sidewalk table; or mobile, in which it is moveable from one location to another. Some traders combine both fixed and mobile vending. Mobile vending might expand and promote vast prospects on growing individual economies, such as fashion trucks due to several reasons such as low cost, ability to reach customers where they are, and many more (Will Hodgkiss, 2018). In 2020, nearly a dozen fashion trucks gathered virtually for Mobile Boutique Market and successfully showcased clothing, jewelry, gifts, and many more (BoothCentral, 2020). Malaysia is getting popular with the food truck, especially in Kuala Lumpur and Selangor area (Tourism Malaysia, 2018). Many decorated food truck retailers attract consumers to buy their food by way of their exterior design. The evolution of fashion trends in Malaysia has triggered the street vendor to create mobile fashion retail. In this research, a new design proposal introduces the advantages of mobile vending as a new trend in the Malaysian fashion industry. The study and analysis seek to gain design knowledge on mobile fashion retail that can enhance several aspects of

marketability, including mobility and space composition.

RESEARCH METHOD

Mixed method was adopted for this research. Three methods of data collection were selected to achieve the research aim and objectives. The first method was the line-up study, where six samples of existing vendor trucks were selected to study the design elements needed for business purposes. The next method was setting the checklist for the spatial layout of the truck. In this method, the same six samples to improve the spatial layout of trucks were illustrates. The third data collection method was the use of the questionnaire survey. For the survey, thirty females from the age range of 25 – years old in Kuala Lumpur area selected.



Figure 1: MOVAA – A Mobile Fashion Trucks

RESEARCH ANALYSIS & FINDINGS

LINE UP ANALYSIS

Table 1 shows the result gained from the line-up analysis for six samples of business trucks. The line-up study is divided into nine categories; dimension, size, passenger capacity, number of wheels, type of vehicle, styling, power supply, business type and usage scenario. There were two kinds of size for trucks; 1) compact size and 2) large size. Compact size trucks can as seen in sample 1, 2, 4 and 6 can occupy up to 4 person. In contrast, larger size trucks in sample 3 and 5 can occupy up to 10 person. The compact size trucks are usually used for light-duty goods such as for food and daily product retails as well as food trucks. The large size trucks are used for heavy-duty purposes such as boutique retails and performance truck. Most of the trucks use Genset and generator as the power supply due to the low and affordable price, yet can be used for long hours of business operation. In terms of styling, the concept that was used is classified as classic and modern.

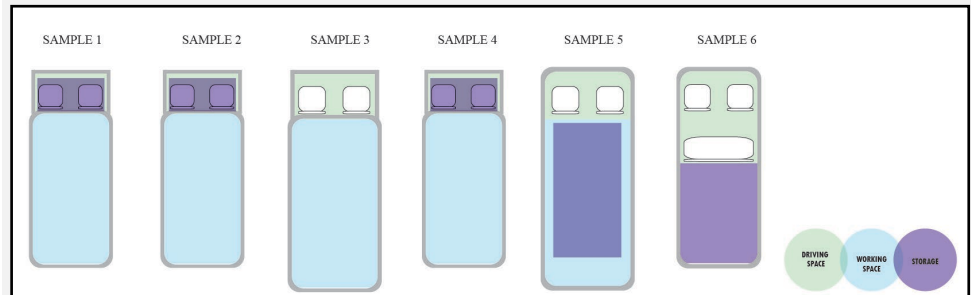


Figure 2: Samples for Fashion Trucks
(Source: Google Website, 2017)

Table 1: Elements Needed for Fashion Trucks in Malaysia

SAMPLE	DIMENSION (mm)	SIZE	PASSENGER CAPACITY	NO. OF WHEELS	TYPE OF VEHICLE	STYLING	POWER SUPPLY	BUSINESS TYPE	USAGE SCENARIO
1	4000 x 1670	Compact	3	4	Light duty truck	Classic	Genset	Food retail	Outdoor → easy to setup
2	4000 x 1670	Compact	3	4	Light duty truck	Classic	Building electric source	Key duplicate retail	Outdoor → easy to setup
3	7140 x 2700	Large	10	6	Heavy duty truck	Modern	Genset	Performance lorry	Outdoor → easy to setup
4	4000 x 1670	Compact	3	4	Light duty truck	Classic	Generator	Gadget retail	Outdoor → easy to setup
5	7140 x 2700	Large	7-8	4	Minibus	Classic	Genset	Boutique retail	Outdoor → easy to setup
6	3530 x 1670	Compact	4	4	Van	Classic	Generator	Storage	Outdoor → take time to setup

CHECKLIST ANALYSIS



SPATIAL LAYOUT				
	Driving	Working	Storage	Driving & Working
Sample 1	✓	✓	✓	Separated
Sample 2	✓	✓	✓	Separated
Sample 3	✓	✓	-	Separated
Sample 4	✓	✓	✓	Separated
Sample 5	✓	✓	✓	Integrated
Sample 6	✓	-	✓	Integrated

Figure 3: Spatial layout for Interior of the Selected Samples

Figure 3 shows the results gained from the checklist method on the spatial layout for six samples of business trucks. The spatial layout was categorised into four (4) categories; driving, working, storage and driving & working. There are two (2) main types of spatial layout for business trucks; 1) integrated and 2) separated. Integrated spatial layout is where the retail area and driving area are combined and created an easily accessible passage from one area to another area. This situation created a maximum space for the movement in the truck. However, the integrated layout may also cause some disadvantages; for example, the driver area will have less privacy and safety, as well as noises, can be heard from the retail area. Next is the separated spatial layout, where the driving area and retail area are separated to be in two different organisational spaces. This type of spatial layout provides different purposes for each area. The main purposes for the driving area will be a space with more privacy, safety and comfort. However, this type of driving area might be a bit compact compared to the driving area of integrated spatial layout.

Four (4) samples (sample 1, 2, 4 and 5) have all the three (3) kinds of areas which are driving, working and storage. These samples represent the trucks that are used for food and retail product purposes. In sample 3, the performance truck only has two areas; driving and working. Only Sample 6 has a storage area because this truck is mainly for storage purposes, where the vendor is selling apparel. During the business hour, the vendor displays all the clothes outside the truck, which is like the usual scenery that can be seen in our neighbourhood's morning or night market. The advantage of selling in open space is that customers have easy access to the product. At the same time, the disadvantages are factors relating to lack of safety, cleanliness as well as facilities such as fitting room, especially for Muslim women.

SURVEY QUESTIONNAIRE ANALYSIS

Table 2 shows the result gained from the questionnaire survey analysis. All respondents are female, age 25 until 45 years old. The respondents are selected among university students, executives in private and public sectors. In the survey, 80% of the respondents preferred buying things from the retail truck; about 23% of the respondents prefer to buy their apparels at the departmental store; 23% of the respondents prefer online shopping and 19% prefers the street market. Of the above, 33% of respondents prefer mannequin as the most suitable item to boost the attractiveness of the display area in the truck. Other preferences include a clothing rack, display rack, tables with allocating discount items. Most of the respondents chose 'easy to shop' (23%), 'creative' (19%) and 'stand out in the crowd' (16%) for the concept of the apparel retail truck. In selecting the design criteria for developing the apparel retail truck, the respondents and user's opinion will be considered to ensure that the users need, and demand can be adequately answered.

Table 2 : Result gained from survey questionnaire

Questionnaire's Items	Result analysis
Gender & Age	<ul style="list-style-type: none"> 100% females as respondent 65% respondents are 25 – 35 years old
Preference for buying from truck Retail	<ul style="list-style-type: none"> 80% of respondents prefer to buy from truck retail
Preference for Types for Apparel Retailing	<ul style="list-style-type: none"> 27% of respondents prefer to buy apparel at departmental store 23% of respondents prefer to buy from online retailing 19% of respondents prefer to buy from street market
Preference for Attractive Items for the Display Features in the Truck	<ul style="list-style-type: none"> 33% of respondents prefer Mannequin display 24% of respondents prefer clothing rack 22% of respondents prefer display rack and tables 21% of respondents prefer discount items
Concept for Apparel Retailing in Truck	<ul style="list-style-type: none"> 28% of respondents prefer 'easy to shop' 19% of respondents prefer 'creative' 16% of respondents prefer 'stand out in the crowd'

FINDINGS FROM LINE UP AND QUESTIONNAIRE SURVEY

The findings in Table 3 indicate that there are three (3) kinds of main design elements required for the development of apparel or fashion truck. They are 1) fast set-up, 2) spatial layout and 3) display features. Fast set-up idea was selected for the exterior design for the truck, as this truck is the mobile retail, so it is required to have an easy to set-up truck. The suitable dimension for fashion retail truck is a large truck with a dimension of 7140 x 2700 mm, and a maximum capacity of 10 persons at one time. Separated spatial layout is suitable for the fashion truck, consisting of 3 main areas; driving, working and storage area. Retail shop in the truck will improve the cleanliness, safety and create Muslimah-friendly situation to the customers. As mentioned earlier, the mannequin is the most popular items rated by female respondents for display features. It plays a significant role in making store fixtures stand out against the images of a screen. A mannequin is a chance for fashion shop/store to show shoppers something they cannot see anywhere else, and mannequin works to convert that advantage into revenue for the vendors. The concept of fashion retail should be more towards 'easy to shop' with various creativity to attract more shoppers or customers.

Table 3 : Overall findings from line-up study, checklist and survey questionnaire

Research Methodology	Result comparison
Line-up analysis	Fast Set-up <ul style="list-style-type: none"> Types of truck: Standard size light duty – suitable for boutique type Dimension: Capacity: Setup duration : Fast, easy
Checklist	Spatial Layout <ul style="list-style-type: none"> 3 main area; driving, working and storage Separated area between driving, working and storage Retail shop in the truck; clean, safe, privacy and Muslimah-friendly
Survey Questionnaire	Display features <ul style="list-style-type: none"> Items for display area : mannequin, display racks and tables, discount items Concept : 'easy to shop', 'creative'

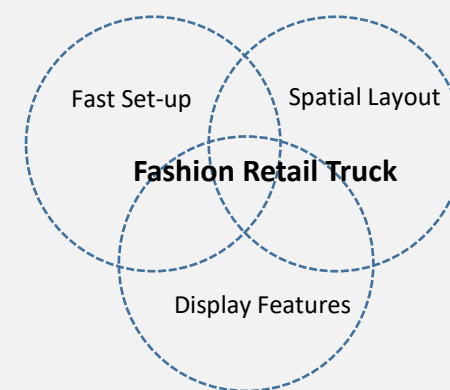


Figure 3: Findings for Spatial Layout of the Fashion Truck

DESIGN DEVELOPMENT

EXTERIOR DESIGN

Based on the findings, the three elements that have contributed to the development of Fashion Retail Truck are (i) fast set-up, (ii) spatial layout and (iii) display features. The 'fast set-up' element is referring to the exterior, 'spatial layout' is about interior and 'display features' is about the interior decoration for the retail/shop. In this research, the Fashion Retail Truck is called MOVAA. To develop MOVAA, sketches are the first step to visualise the idea of exterior design. Dragonfly was taken as the subject matter in creating the exterior design or form of the truck body. The basic form of the truck body was further enhanced, and the 'simple' form is taken as the exterior concept (figure 4). The standard size of a light-duty truck was referred, and the dimension was transferred into a mock-up scaled of 1:30. The mock-up model allows the designer to explore more on the exterior shape of the model. The practicality of the proposed mechanism was tested at this stage to prove the logic of research and data analysis studied. The side wing of the mock-up model can be expanded to widen the space of the interior. Wide interior space enhances human circulation and eases the movement inside the truck. It also provides vast storage space and driving space for comfort inside the truck (figure 6). The proposal of the exterior design is shown in figure 5.

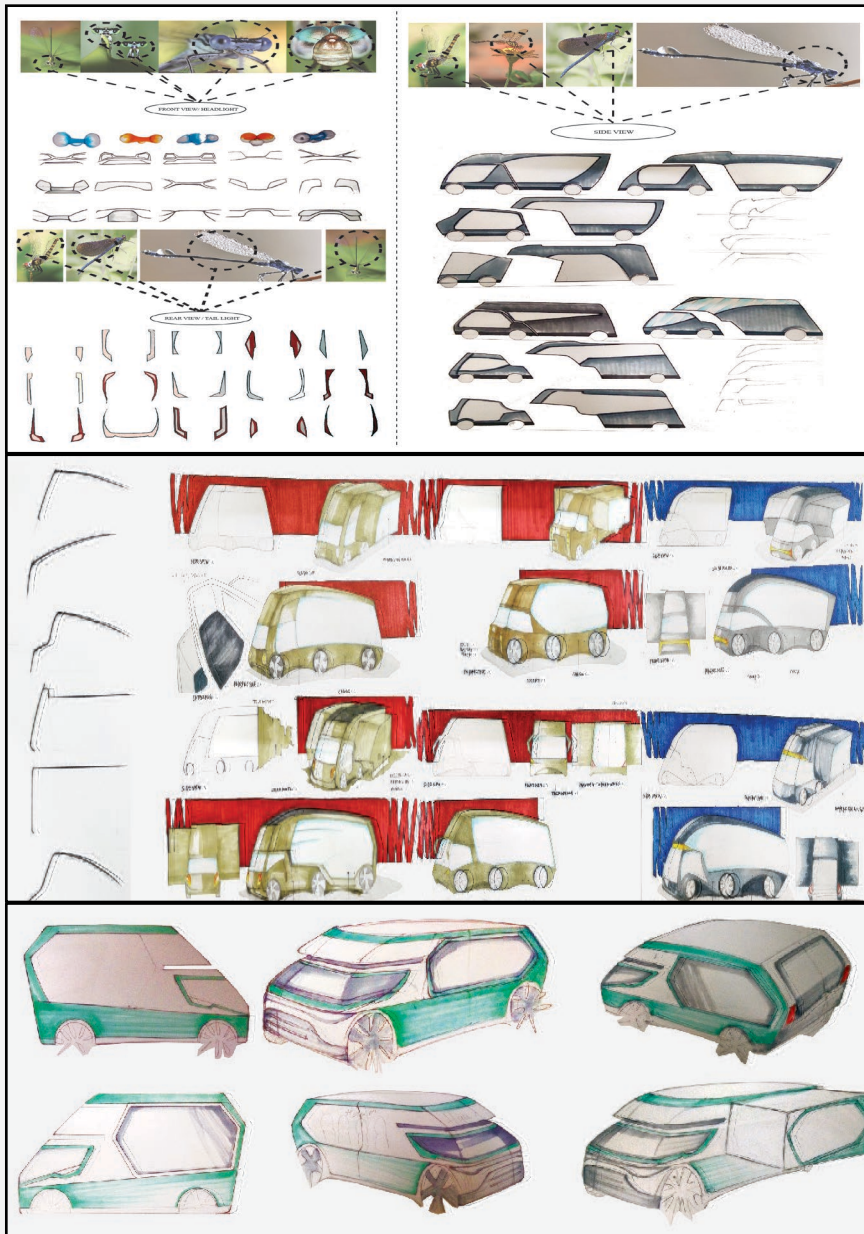


Figure 4: Initial sketches for the exterior of the truck

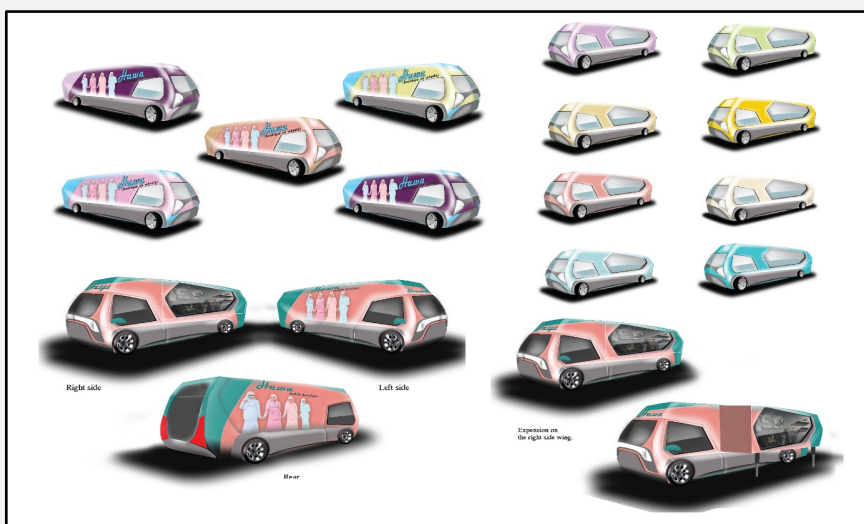


Figure 5: Proposals for the exterior design

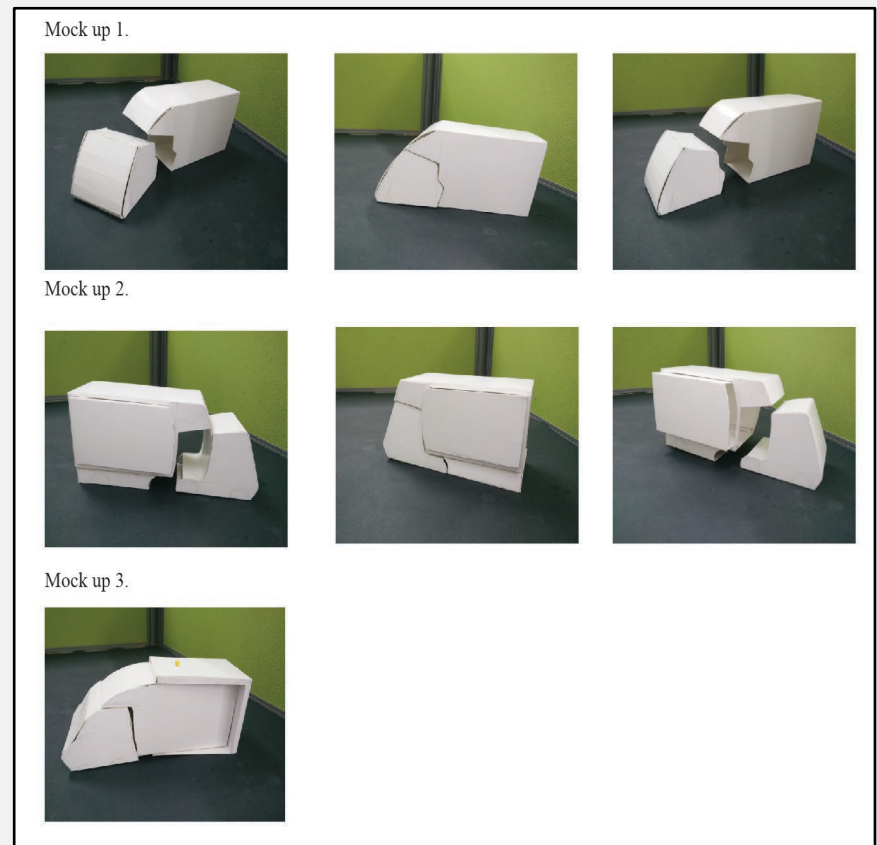


Figure 6: Mockup for the exterior of the truck

SPATIAL LAYOUT

Bubble and zoning diagram, as shown in figure 7, is the usual design mechanism used by designers to solve the space-planning problem. For this research, the process was used to solve issues arisen through data collection from interior layout of trucks. Bubble and zoning diagram provides a rough idea on the interior relationship of space layout of the truck. In the bubble diagram using several circles were created in different colors and sizes with arrows that linked to show the relationship among the circles. The circles are the proposed area for the spatial layout of the truck. In solving space relationship problem, zoning is used to differentiate the usage of each area specifically. Zoning of the areas within the truck requires the drafting of the basic floor plan of the truck. Both diagrams; bubble and zoning are essential to set the initial concept for interior space of the truck.

The development continued by developing three types of interior layout, as depicted in figure 8 and 9. In order to widen the space and provide better human circulation in mobile fashion vending, an expandable wing was proposed. Three (3) proposals for spatial layout related to the expandable wing were presented. The anthropometric and human-scale were considered for each proposal. Of the three proposals, Proposal 1 was chosen as the most practical space organization to be developed. Proposal 1 allows expansion from both sides of the wing, while the entrance is from the back of the truck. With enlarge space, Proposal 1 thus create a convenient movement inside the truck for both retail and customer.

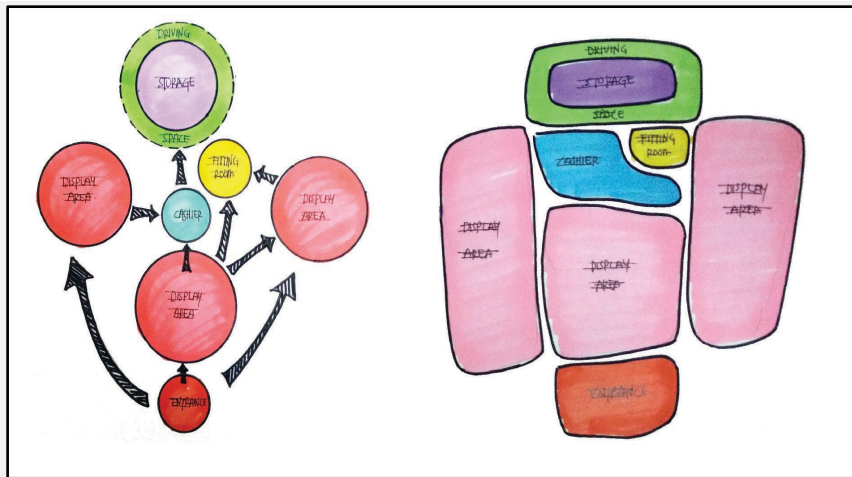


Figure 7: Bubble diagram for the spatial layout

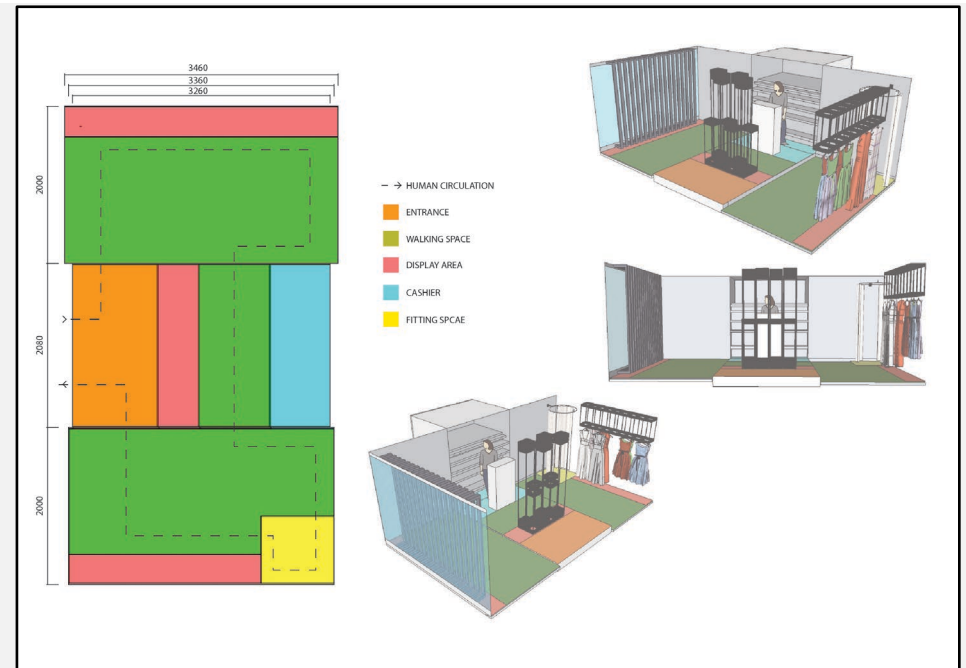


Figure 9: Final Proposal for Spatial Layout of the Truck

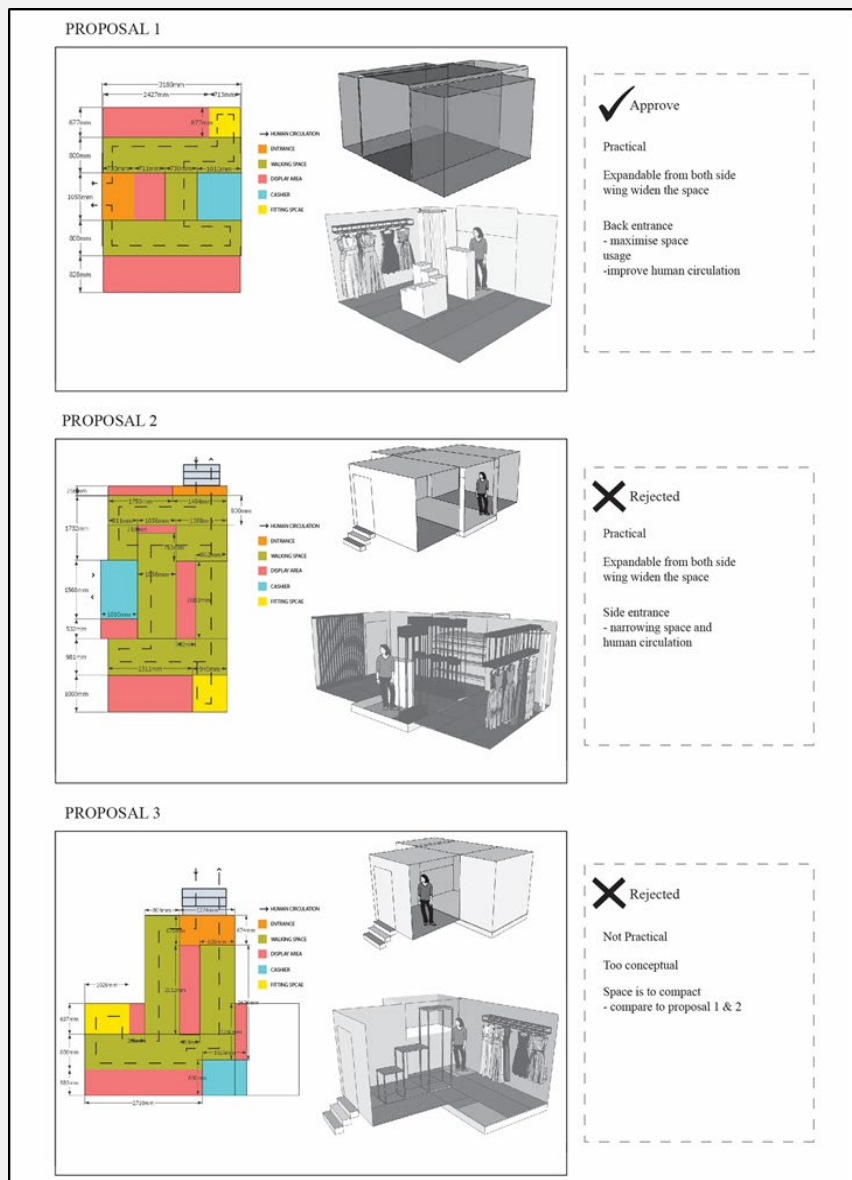


Figure 8: Proposals for Spatial Layout of the Truck

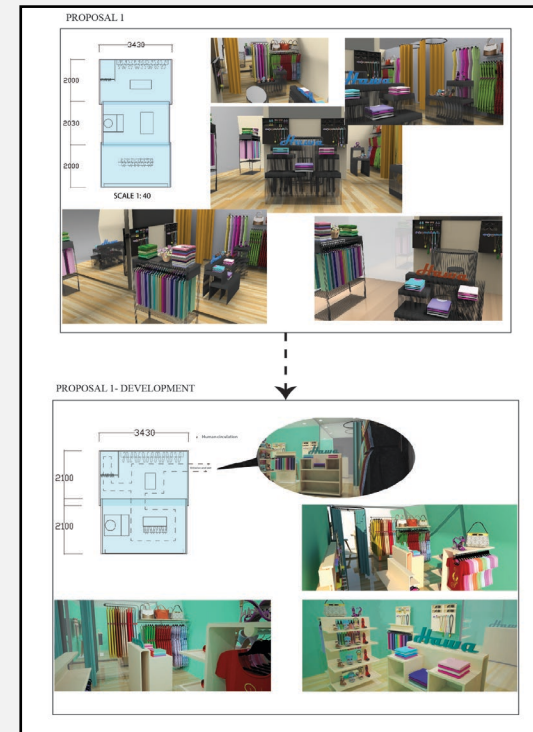


Figure 10: Final Proposal for Display Area of the Retail in Truck

The next phase of design used digital 3D rendering technique. At this stage, the software used includes AutoCAD, SketchUp, V-Ray, Adobe Photoshop and Adobe Illustrator. The approved interior floorplan was digitally drawn using AutoCAD and build up to 3D using SketchUp software. Next stage includes the drawing rendered using V-Ray and Adobe Photoshop software for a practical visual review on the display area of retail in the truck (Figure 10). During the model making process, changes need to be made to the spatial layout as well as the display area to fit the function.



Figure 11: MOVAA – exterior and interior design



Figure 12: Design model for MOVAA

CONCLUSION

MOVAA is successfully developed by considering the findings gained from the research on the mobile fashion truck. The MOVAA has dual-functions, which are transporting and retailing. By enhancing the spatial layout of boutique retail of the truck, many other areas can be enhanced to the retail shop found in the department store and little streets. MOVAA is a reliable transport not only for storage purposes but offers a fantastic selection of one-of-a-kind clothing and accessories that can be located at street corners near the customers. With the unique design on exterior and interior, to attract female customers, as well as the ability to expand on its wings; the retail truck widens the interior space thus enhances human circulation. MOVAA, as a fashion retail truck, is easy to set up. The design provides an efficient energy supply. MOVAA is suitable for both male and female vendors despite its concept of 'feminine & elegance look'. Pink represents the feminine image and silver enhances the elegance of the exterior and interior design of the truck. While the display features such as window display and signage in mobile retail encourage consumer purchases of the product, the colour combination brings out the fancy and enjoyable outlook that attract customers far and wide. The overall design of MOVAA thus fulfilled the design criteria of mobile vending (Figures 11 & 12).

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